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# ASSESSMENT OF ENVIRONMENTAL CONTAMINATION EXPLORATORY STAGE TOOELE ARMY DEPOT TOOELE, UTAH

## VOLUME II APPENDIX A







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# ASSESSMENT OF ENVIRONMENTAL CONTAMINATION EXPLORATORY STAGE TOOELE ARMY DEPOT TOOELE, UTAH

## VOLUME II APPENDIX A

PHASE I ENVIRONMENTAL ASSESSMENT
CONTRACT NO.: DAAG49-81-C-0192

Submitted to:

TOOELE ARMY DEPOT
PROCUREMENT DIVISION
P.O. BOX D
TOOELE, UTAH 84074
AND
U.S. ARMY TOXIC AND HAZARDOUS
MATERIALS AGENCY
ABERDEEN PROVING GROUND, MARYLAND 21010

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# Appendix A

## Phase I Environmental Assessment

## A-1 Environment Assessment

### A-1.1 Hydrological Setting

The data evaluated to conceptualize the hydrological system comprised published and unpublished reports provided by the records search conducted by USATHAMA, visits to TEAD and State and Federal agencies by Ertec personnel, and field reconnaissance by vehicle and helicopter during the week of October 12, 1981. The following discussion summarizes the conceptual hydrologic systems for the North and South Areas of TEAD based upon this evaluation. The summary is oriented towards the movement of contaminants towards the boundaries of TEAD.

#### A-1.1.1 North Area of Tooele Army Depot

##### A-1.1.1.1 Topographical Setting and Surface Drainage

The North Area of the TEAD is located in Tooele Valley, which is a northward plunging structural basin ringed by coalescing alluvial fans which have been greatly modified by the shoreline erosion of Lake Bonneville (Everitt and Kaliser, 1980). The valley is bordered on the north by the Great Salt Lake at an elevation of 4200 feet. The valley is bordered by the Oquirrh Mountains to the east and the Stansbury Mountains to the west. Maximum elevations of these mountains are 10,350 feet and 11,031 feet, respectively. Tooele Valley is separated from Rush Valley to the south by South Mountain, a low transverse divide, and by the Stockton Bar, which was deposited by Lake Bonneville during the Pleistocene Epoch.

The surficial topography is characterized by coalescing alluvial fans that slope generally to the north at about 40 feet per mile. No perennial streams exist on the North Area of TEAD. However, perennial reaches of streams exist southeast and southwest of the North Area in South Willow, Box Elder and

Settlement Canyons. The perennial flow of these streams infiltrates the alluvial fan materials before reaching the valley floor which lies to the north of TEAD. The generally northward sloping topography is cut by the ephemeral drainage of South Willow and Box Elder Canyons in the western part of TEAD. A flood control dam was built across Box Elder Wash to control flash flooding events. Sediments trapped behind the dam may contain contaminants from upstream source areas.

Artificial drainage systems have been constructed to dispose of storm runoff from several areas at TEAD. All of these systems either end in spreading areas or in natural drainage channels.

A-1.1.1.2 Climate and Vegetation

The climate of the North Area of TEAD is generally arid to semi arid, with the annual precipitation ranging from 10 to 16 inches (Hood et.al., 1969). The precipitation distribution in time indicates the potential for recharge to underlying aquifers is highest in the months of November through February.

This period is characterized by precipitation occurring as snow and low demand of vegetation for soil moisture.

The mean annual temperature at Tooele, is about 10.6°C (Hood et.al., 1969). This gives a good estimate of the temperature of the ground water. Sorption and desorption of organic chemical species is temperature-dependent (Leighton and Culo, 1981), which may effect the migration potential of some organic contaminants known to occur at TEAD.

Recharge potential used in the ranking procedure to assess contaminant migration potentials was determined by two methods. Hood et.al. (1969) give data

in their Figure 2 and Table 8 that indicate the annual recharge rate at the TEAD North Area is between 1.0 and 1.5 inches per year, based upon the method of Eakin et.al. (1951). A second estimate of annual recharge was prepared by computing the monthly excess of precipitation over potential evapotranspiration (PET) for climate conditions measured at Tooele. Potential evapotranspiration was computed with the method of Jensen-Haise as described by Lappala (1978). This method has been found to give the most accurate estimates of PET in arid to semi arid climates (Van Klaveren et.al., 1975). Figure 1 shows the monthly balance between precipitation and PET, and the resultant recharge estimate of 1.57 inches per year. Since actual evapotranspiration is less than the potential value, and since some sublimation of the snowfall probably occurs during the winter months, an average potential recharge of 1.0 inch per year was used in the ranking procedure as discussed subsequently. Plate I shows the location of the 1.0 inch per year recharge line based upon data from Hood et.al. (1969).

The vegetation present at TEAD is summarized below as taken from Appendix A, U.S. Army Environmental Impact Assessment of TEAD (1976).

1. Upland loam sites: The primary vegetation for this area is grass, sage brush, and shrubs. The dominant perennial grasses make up approximately 60 to 80% of the vegetation cover. The principal grasses are: Western Wheat, Spiked Wheat, Nature Blue, Needle, Cheat, Indian Rice, Snakeweed and Fescue. Associated with these grasses are limited amounts of Friozonum, Paint Brush, Sweet Vetch, and Lupine. The following shrubs make up 15 to 25% of the cover: Sage, Bitter Vetch, and Yellow Brush.

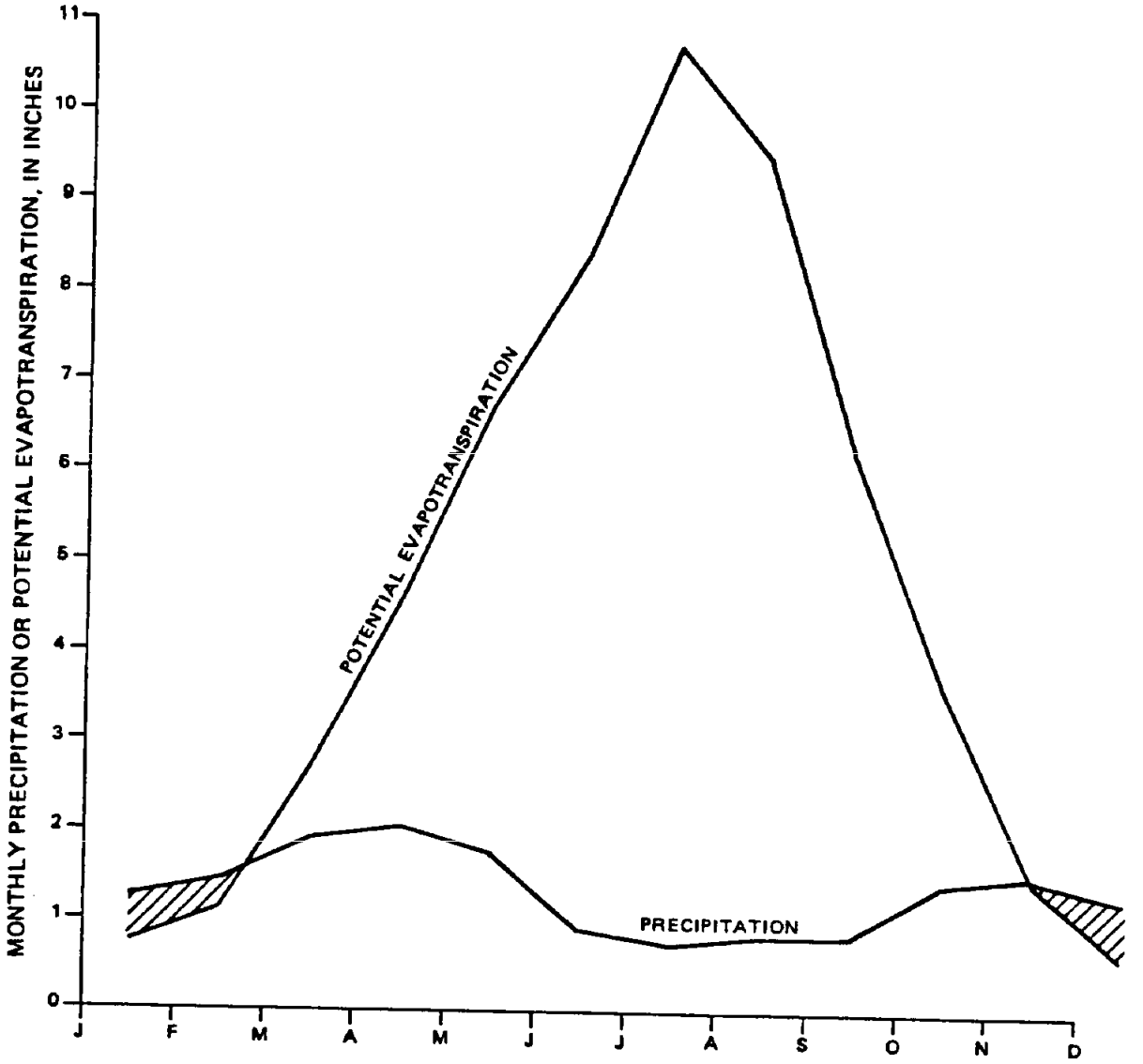
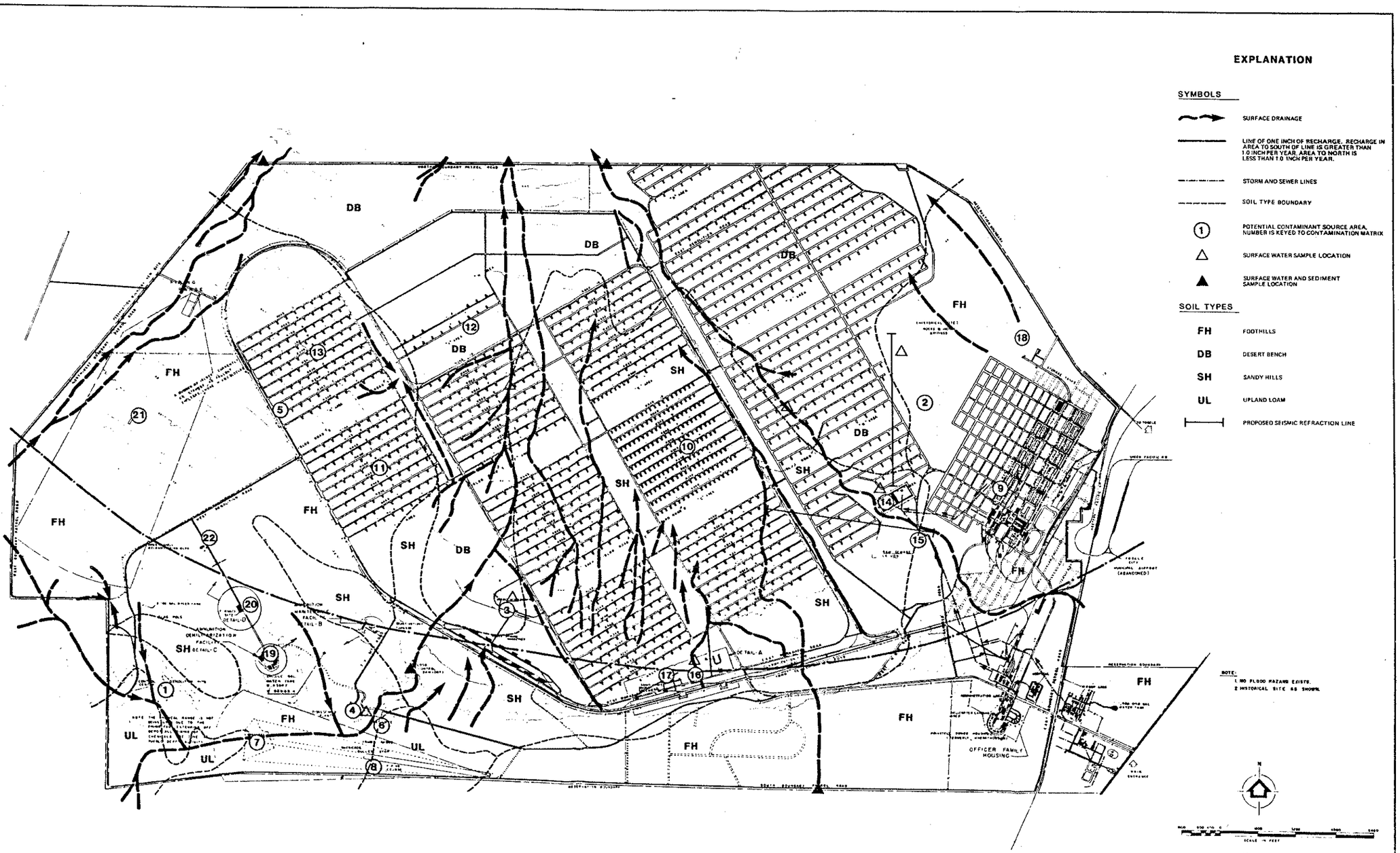



FIGURE 1

MEAN MONTHLY PRECIPITATION AT TOOELE, UTAH, AND MEAN MONTHLY POTENTIAL EVAPOTRANSPIRATION AT TOOELE COMPUTED WITH THE JENSEN-HAISE METHOD. POTENTIAL RECHARGE IS INDICATED BY THE CROSS HATCHED PATTERN AND TOTALS 1.57 IN. PER YEAR.




# PLATE 1

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TOOELE ARMY DEPOT
NORTHERN AREA

SURFACE DRAINAGE, SANITARY AND STORM SEWER LOCATIONS, SOIL/VEGETATION COMPLEXES, ANNUAL RECHARGE TO GROUNDWATER, CONTAMINATION SOURCE LOCATIONS, AND PROPOSED SEDIMENT AND SURFACE WATER SAMPLING SITES

11 81

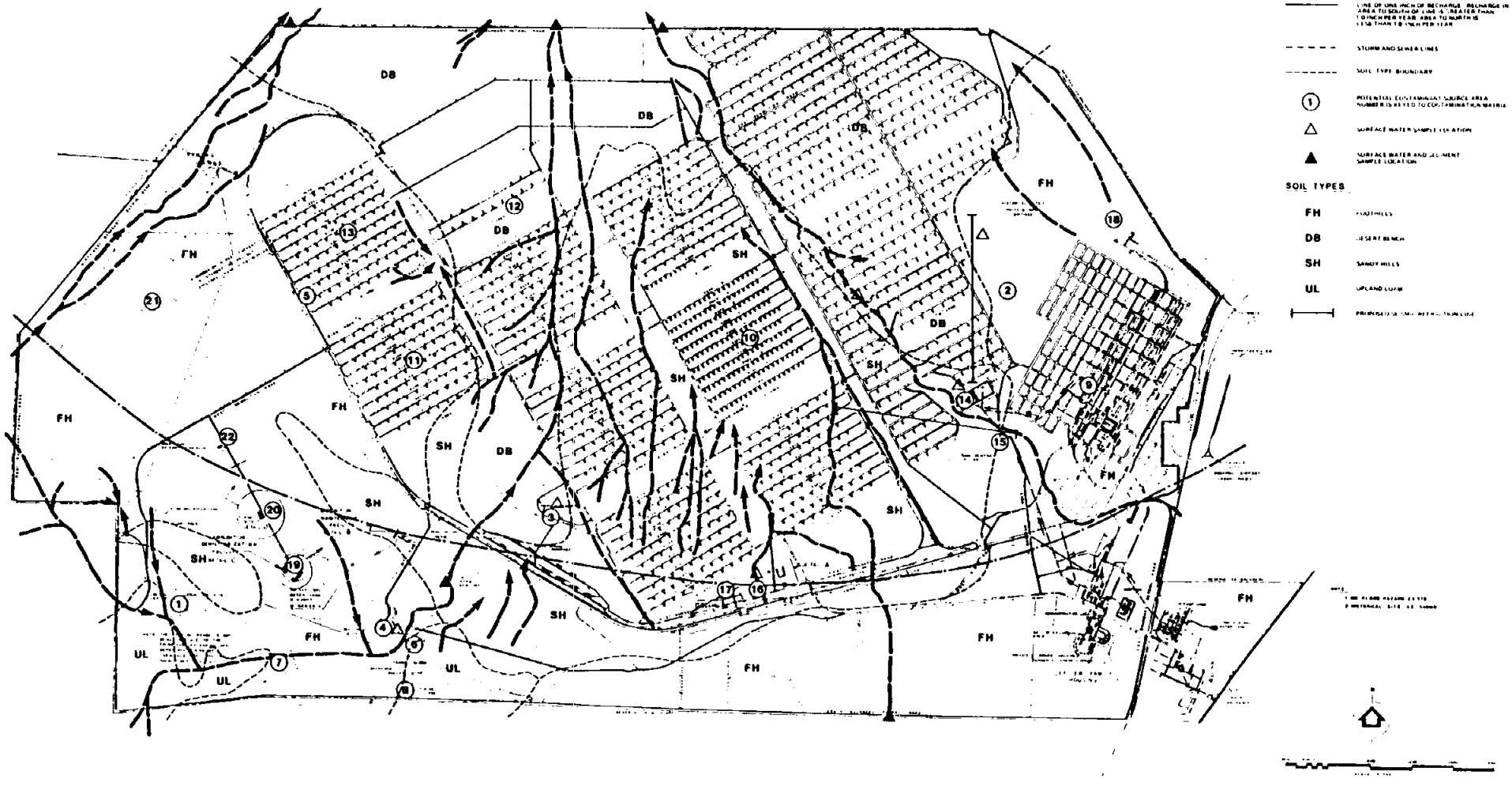


PLATE I

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SURFACE DRAINAGE, SANITARY AND STORM SEWER LOCATIONS, SOIL/VEGETATION COMPLEXES, ANNUAL RECHARGE TO GROUNDWATER, CONTAMINATION SOURCE LOCATIONS, AND PROPOSED SEDIMENT AND SURFACE WATER SAMPLING SITES

2. Foothill site: The following grasses are the primary vegetation for this area: Spiked Wheat, Nature Blue, Needle, Western Wheat, and Indian Rice. Forbs include Sweet Vetch, Balsam Root and Yarrow.

3. Sandy Hills site: The vegetation for this area consists of Juniper with an undercover of grass and shrubs. The principal grasses are: Indian Rice, Sand Drop, and Needle grass. Shrubs are primarily Sage and Ephedra.

4. Desert Bench site: The vegetation in this area is a browse grass mixture consisting of: Western Wheat, Indian Rice, Winter Fat, Bud Sage and in some cases: Salt Sage, Grey Molly and Greasewood.

Plate I shows the areal distribution of these vegetation types as taken from maps provided by TEAD.

A-1.1.1.3 Geology

The dominant structural features of the mountains and valleys of the region that includes both the North and South Areas are folds and normal faults caused by tension in the earth's crust. The valleys are typically underlain by series of down-faulted blocks or grabens. Gravity anomalies indicate that the Tooele Valley Basin is probably not a single, down-faulted graben, but is probably a complex collection of troughs and ridges caused by several down-faulted blocks (Everitt and Kaliser, 1980). Gates (1965) suggests that the valley might be a broad graben which contains two secondary grabens in the north central part of the valley.

Gates (1965) lists five faults in the valley-fill in Tooele Valley, and includes Mill Pond, Occidental (?), Fishing Creek, Sixmile Creek, and Warm Springs Faults. Considerable quantities of water rise along faults to form

the largest springs in the valley. In fact, Razem and Steiger (1981) suggest that high chloride concentrations in wells north and northwest of Tooele (C-3-4)8aaa, (C-3-4)9aaa, (C-3-5)1aca, and (C-3-5)22dab could be the result of the upward leakage of water of high chloride concentrations along faults, although there are no previously mapped faults in the area.

Sixmile Creek fault is the only fault within Tooele Valley which shows evidence of Quaternary surface faulting. However, Everitt and Kaliser (1980) suggest, based on calculated fault densities for Tooele and Rush Valleys, that there is a large number of undetected, potentially active faults in Tooele Valley. In fact, they show a fault between TAD-2 and Well USGS-2. This fault coincides with the trace of the bedrock outcrop in the northeastern portion of the site which Thomas (1946) mapped as part of an anticline. However, Everitt and Kaliser do not extend this fault in any direction. Gates (1965) suggests that there might be a deeply buried bedrock ridge from this same outcrop trending northeastward to the mountain front. Moreover, increasing chloride concentrations in Well (C-3-5)22dab, which is near the outcrop, could be due to leakage along a fault.

If a line is drawn between the outcrop in the northeast and a similar one in the south, (discussed below), it has a trend of approximately N38°E. This is similar to the strike of the scarp of the Sixmile Creek fault which in N30°E, and the trend of N40°E of the Box Elder Canyon fault shown by Thomas (1946). Therefore, it is possible that there could be an unmapped fault trending across the TEAD which could serve as a conduit for the movement of ground water.

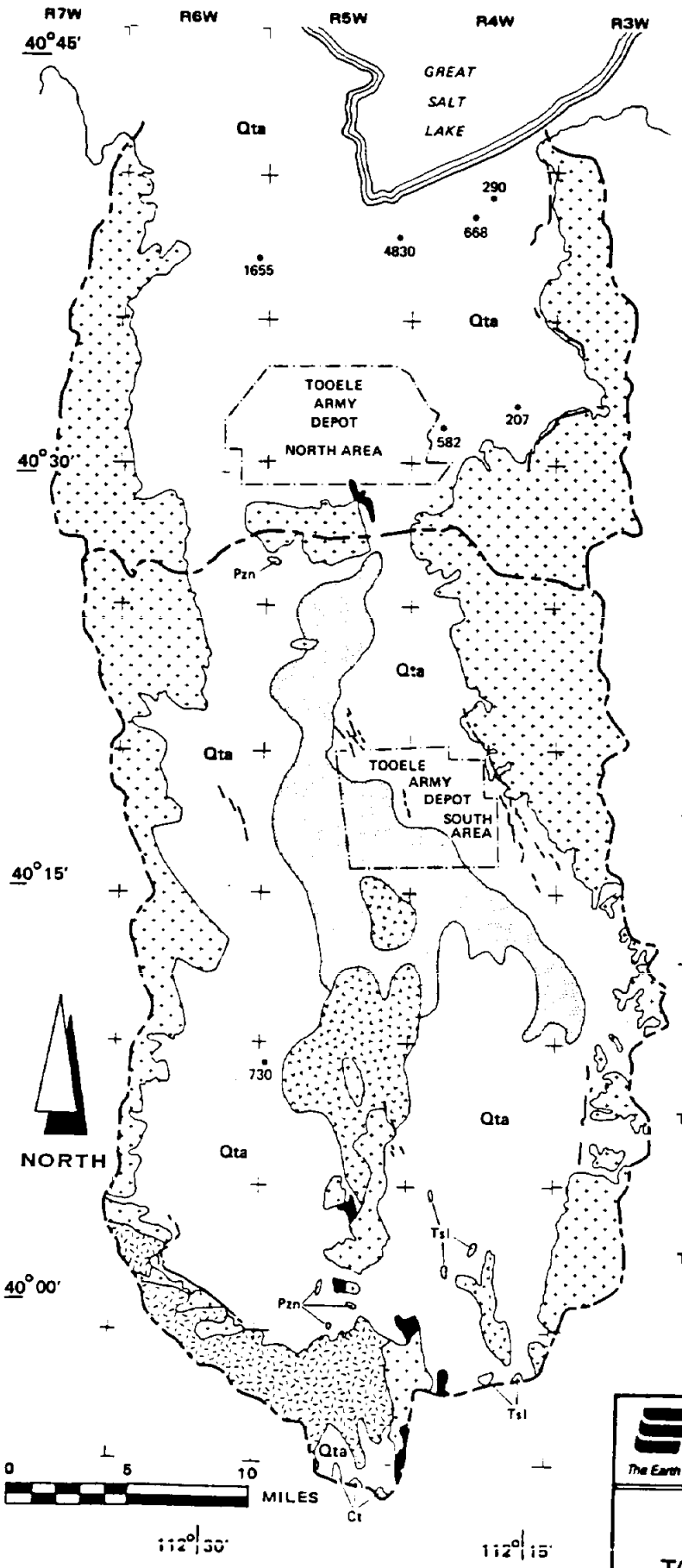
Further evidence for a buried bedrock ridge is the existence of a previously unmapped bedrock outcrop along the south central portion of TEAD. This

outcrop was observed during the field reconnaissance trip in October, 1981. The hydrological significance of this feature is discussed in Section 2.1.1d. The surficial geology of the region that includes both the North and South Areas is shown in Figure 2.

The valley fill consists of deposits of two ages, an older sequence of Tertiary age and a younger sequence of Quaternary age. The older sequence comprises the Salt Lake Group and consists of moderately consolidated sand, gravels, silts, and clays with an abundance of volcanic ash (Everitt and Kaliser, 1980). The group is characterized by considerable deformation by tectonic processes. Razem and Steiger (1981) noted an increase in the fraction of finer-grained materials at a depth of 800 to 900 feet and suggest that this level may mark the top of sediments of Tertiary age.

The younger sequence of the valley fill unconformably overlies the Salt Lake Group and consists of relatively unconfined deposits of mostly unconsolidated sand, gravel, silt, and clay of Quaternary age (Everitt and Kaliser, 1980). This sequence includes pre-Lake Bonneville alluvium of Pleistocene Age, Lake Bonneville deposits of Pleistocene Age, and deposits of recent age which include alluvium, lake beds, and dune sands (Gates, 1965).

The sediments of the younger valley fill occur in irregular, interfingering layers. Alluvial and lacustrine deposition environments alternated several times during the Tertiary and Quaternary (Gates, 1965), although alluvial processes probably dominated around basin margins, with lacustrine processes dominating toward the center. Beds of alluvial gravel thin and pinch out between beds of silt and clay towards the center of the basin (Everitt and Kaliser, 1980).




## EXPLANATION

- BOUNDARY OF DRAINAGE BASIN
- SUSPECTED FAULT SCARPS IN UNCONSOLIDATED DEPOSITS (BUCKNAM, 1977)
- Qta — ALLUVIAL DEPOSITS - CLAY, SAND, AND GRAVEL MODERATE TO HIGH PERMEABILITY
- Qlc — LAKE SEDIMENTS - CLAYS, SLIGHTLY SALINE LOW TO MODERATE PERMEABILITY
- Tsl — SALT LAKE FORMATION - CONTINENTAL SANDSTONE, CLAYSTONE, LIMESTONE AND TUFF, LOW PERMEABILITY
- Tig — IGNEOUS ROCKS - RHYOLITE, DACITE, LATITE FLOWS, LOW PERMEABILITY
- Pzn — PALEOZOIC SEDIMENTARY ROCKS, CHIEFLY CARBONATES, GENERALLY LOW PERMEABILITY, LOCALLY HIGH ALONG JOINTS, FAULTS, ETC.
- Ct — TINTIC QUARTZITE - LOW PERMEABILITY EXCEPT HIGH ALONG FAULTS, FRACTURES, ETC.
- 730 — WELLS PENETRATING BEDROCK WITH DEPTH TO BEDROCK IN FEET (EVERITT AND KALISER, 1920)

DATA COMPILED FROM:

RUSH VALLEY- HOOD, AND OTHERS, 1969
TOOELE VALLEY - MOORE AND SORENSEN, 1979
QUATERNARY FAULTS- BUCKNAM, 1977

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# FIGURE 2
# GENERALIZED GEOLOGY, TOOELE AND RUSH VALLEYS, UTAH

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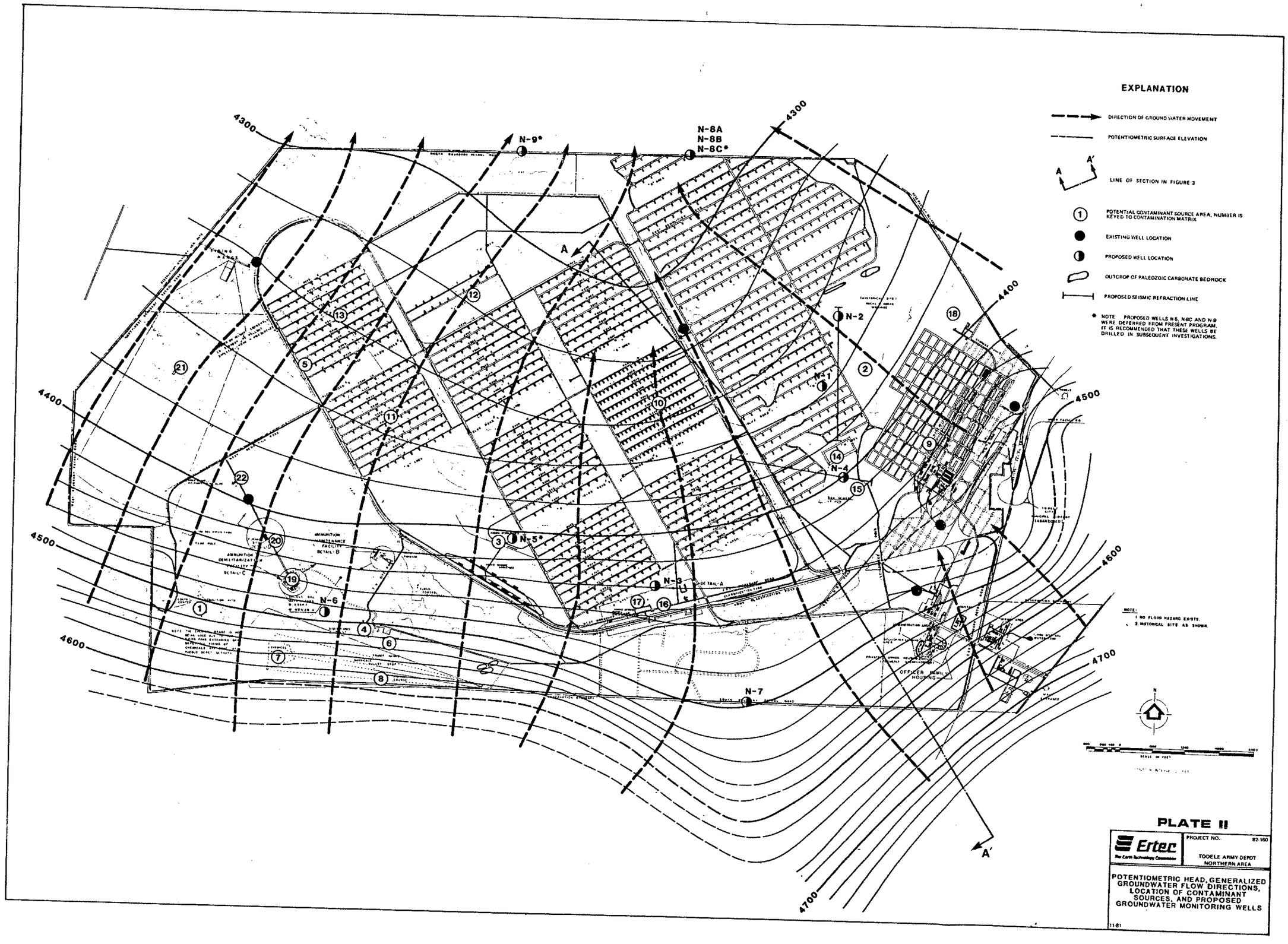
The valley fill is over 8000 feet thick in the north central part of Tooele Valley and thins towards the valley margins (Everitt and Kaliser, 1980). The valley fill is over 1500 feet thick on the site at well (C-3-5)22dab, but it probably thins out southeast and southwest from the North Area. One well, (C-3-4)29cba, just east of the site, penetrated limestone bedrock at a depth of 582 feet. Limestone bedrock crops out in the northeastern portion of the site, and another body of rock crops out along the southern boundary (Plate II).

The bedrock underneath the valley fill is assumed to comprise carbonate sediments of paleozoic age. These rocks are the same ones that crop out at two places on TEAD, and comprise the mountains on the east, south and west of TEAD (Figure 2).

A-1.1.1.4 Hydrogeology

The ground-water system that underlies the North Area of TEAD is conceptualized as a thick sequence of valley fill sediments in which water generally occurs under unconfined conditions. Confined aquifers exist north of the TEAD North Area as described by Gates (1965), and Razem and Steiger (1981).

Confined conditions may exist locally at TEAD, but the confining sediments are thought to be of limited areal extent. In some areas of the ground-water system, the valley fill may be unsaturated or contain only a thin saturated zone. These areas are most probably along the axis of the possible buried bedrock ridge that connects the outcrops. In these areas, the water probably occurs in solution openings and fractures in the carbonate bedrock.


EXPLANATION
DIRECTION OF GROUND WATER MOVEMENT
POTENTIOMETRIC SURFACE ELEVATION
A
A'
LINE OF SECTION IN FIGURE 3
1
POTENTIAL CONTAMINANT SOURCE AREA, NUMBER IS KEYED TO CONTAMINATION MATRIX
EXISTING WELL LOCATION
PROPOSED WELL LOCATION
OUTCROP OF PALEOZOIC CARBONATE BEDROCK
PROPOSED SEISMIC REFRACTION LINE
* NOTE: PROPOSED WELLS N-5, N-8C AND N-9 WERE DEFERRED FROM PRESENT PROGRAM. IT IS RECOMMENDED THAT THESE WELLS BE DRILLED IN SUBSEQUENT INVESTIGATIONS.
4300
4400
4500
4600
4700
N-9*
N-8A
N-8B
N-8C*
N-2
N-1
N-4
N-5*
N-3
N-6
N-7
A
A'
NOTE:
1. NO FLOOD HAZARD EXISTS.
2. HISTORICAL SITE AS SHOWN.
OFFICER FAMILY HOUSING
PLATE II
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TOOELE ARMY DEPOT
NORTHERN AREA
POTENTIOMETRIC HEAD, GENERALIZED GROUNDWATER FLOW DIRECTIONS, LOCATION OF CONTAMINANT SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS
11-81

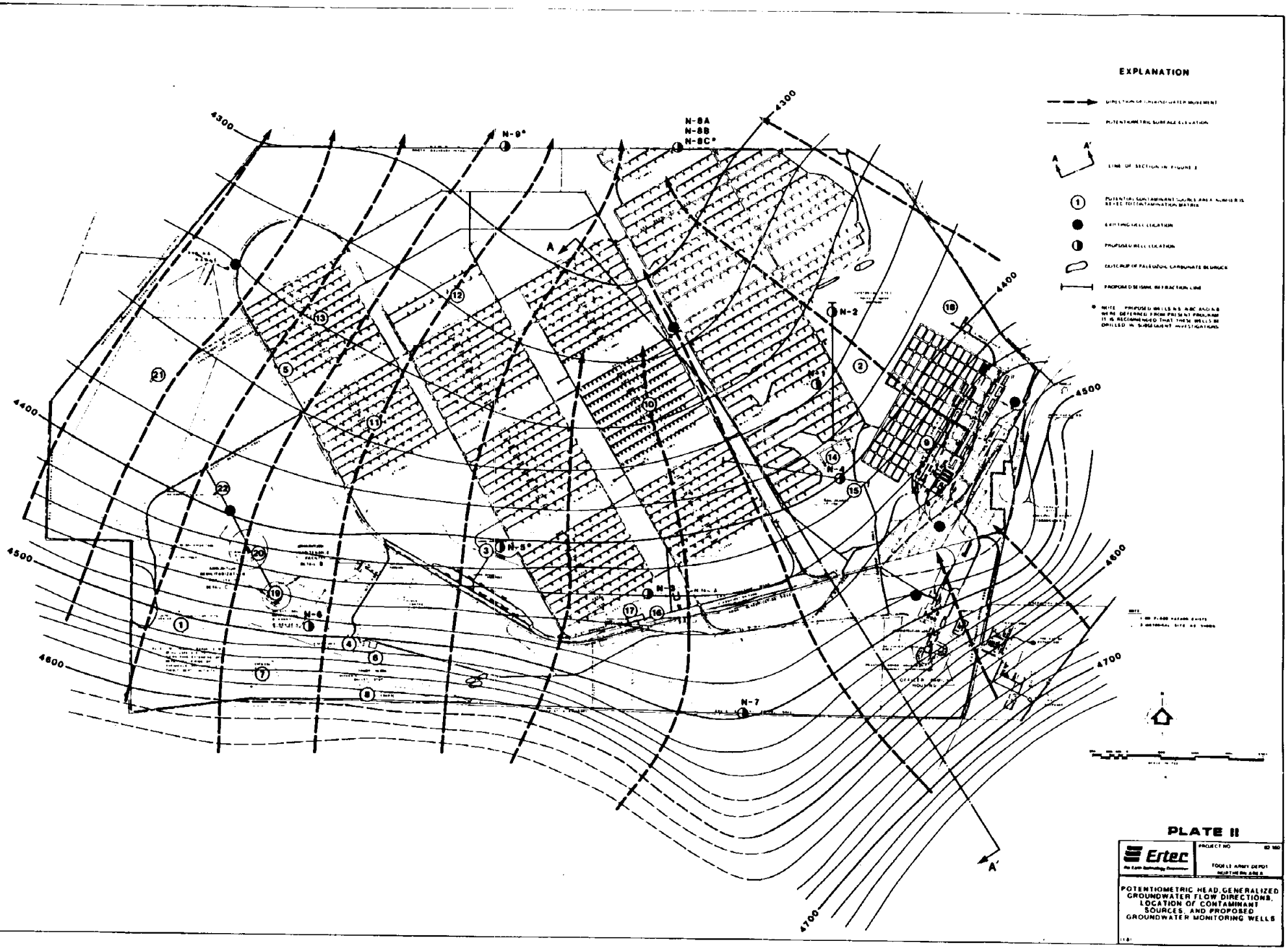


PLATE II

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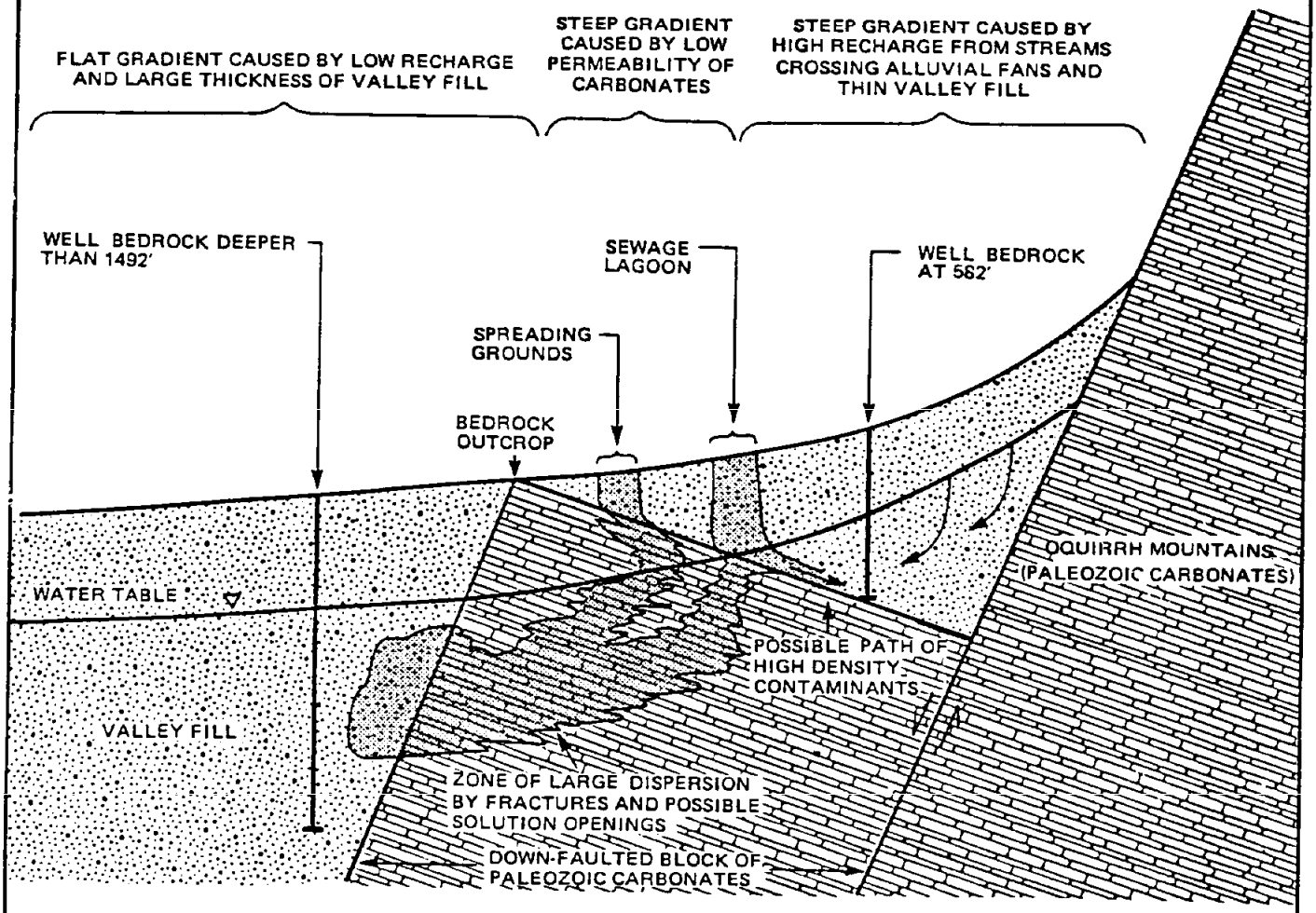
TOOELE ARMY DEPOT
NORTHERN AREA

POTENTIOMETRIC HEAD, GENERALIZED GROUNDWATER FLOW DIRECTIONS, LOCATION OF CONTAMINANT SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

As in all hydrogeological systems, ground water at TEAD moves from areas of recharge to areas of discharge in the direction of decreasing hydraulic potential. Water levels from relatively few wells were available to define the potentiometric head distribution. Plate II shows a preliminary head distribution based upon these data.

The point data were augmented by knowledge of the location of recharge areas along the mountain fronts (Razem and Steiger, 1981; Gates, 1965), and the general direction of ground-water movement towards discharge areas to the north of TEAD. The two-dimensional computer model used by Razem and Steiger was obtained and a steady-state simulation was run to evaluate ground-water flow directions. This model is available for refinement of the conceptualization of the hydrogeological system as more data become available.

The potentiometric surface ranges from approximately 4760 feet southeast of the site to less than 4300 feet in the northwestern portion of the site. Gates (1965) suggests that the steep hydraulic gradient near Tooele may indicate that the ground water flows down a steep bedrock surface, and that the saturated thickness is probably small. The direction of ground-water flow in Tooele Valley is from the west, south, and east margins toward the central and lowest part of the valley and ultimately to the Great Salt lake. Ground-water flow at TEAD is generally to the northwest and north towards Grantsville. The hydrologic significance of the possible buried bedrock ridge at TEAD is illustrated in Figure 3. This section illustrates possible pathways of pollutants from surface sources southeast of this feature. The line of the section (A-A') is shown on the potentiometric surface map in Plate II. Gradients along the potentiometric surface are higher southeast of this subsurface

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TOOELE ARMY DEPOT

FIGURE 3
HYPOTHETICAL CROSS–SECTION A–A'
THROUGH NORTH AREA

11-81

feature than to the northwest of line A-A'. The steeper gradients are considered to be the result of three factors:

1. The carbonate rocks have lower permeability than the valley-fill materials. This would tend to restrict the new flow of ground water.

2. Recharge is higher close to the mountain front of the Oquirrh Mountains because of losses from streams crossing the alluvial fans.

3. The rapid increase in thickness of the more permeable valley-fill aquifer on the northwest side of the subsurface ridge would cause a fairly rapid flattening of the potentiometric gradients.

The path of contaminants in the subsurface also might be affected by the presence of the bedrock ridge in the following manner:

1. Connected pore space in the carbonates through which ground water and dissolved solutes move, probably is in the form of fractures and solution openings. This causes the overall connected porosity to be lower than that of the valley-fill sediments, thus increasing the velocity of contaminant movement. The distribution of fractures and solution openings is generally such that the dispersion of a pollutant plume is 10 to 100 times larger than in sediments like the valley fill. The distribution of these openings may be such that contaminant movement will be less predictable than in the valley fill.

2. Contaminants that are more dense than ground water may move down the valley fill--bedrock interface, up-gradient of the flow of ground water. Many of the possible contaminants at TEAD are more dense than water, as shown in Table 1.

Table 1. Densities of Selected Potential Contaminants at 25°C

| Organic | | | Inorganic | |
|---|---|---|---|---|
| Pesticies: | Lindane | 1.87 | Paint Pigments | <1 |
| | Malathion | 1.2 | Napalm | <1 |
| | Dieldrin | 1.75 | Phosphoric Acid | 1.8 |
| | | | HCL | 1.0 |
| Chemical Agents: | | | White Phosphorus | 1.82 |
| | AC | 0.7-0.9 | | |
| | CG | 1.4 | | |

Miscellaneous Compounds

| | |
|---|---|
| Petroleum Products | <1 |
| Grease & Oil | <1 |
| TC Ethylene | 1.5 |
| TC Ethane | 1.5 |
| Tetryl | 1.57 |
| Cresols | 1.03 |
| Phenols | 1.03 - 2.0 |
| PCB | 1.1 |
| TNT | 1.6 |
| RDX | >1 |

Since there are several lines of evidence for the existence of this subsurface feature, and since it may have a significant effect on subsurface flow of ground water and contaminants, a geophysical survey is needed to document its subsurface extent.

The depth to the static water level at the TEAD North Area ranges from less than 200 feet in the north central area to over 600 feet in the southwest portion of the site. Plate III shows the preliminary depth to water distribution determined by subtracting water-level elevations in Plate II from the land surface elevations as given on topographic maps provided by TEAD.

The only available estimate of transmissivity that would be required to predict contaminant movement in the ground-water system is given by Razem and Steiger (1981) to be about 60,000 $ft^2$/day. Data from an aquifer test at well (C-3-4)30acc-1 indicated a storage coefficient of 0.002, which is indicative of semi-confined conditions. Based upon values for similar sediments, the porosity of the valley fill probably ranges between 0.35 to 0.40 for the gravels and sands and may be as much as 0.50 for lacustrine clays. The secondary porosities of the carbonate sediments that may be important in contaminant migration may range from 0.01 to 0.10. The proposed electrical resistivity survey should provide estimates of porosity of these sediments.

Ground water on TEAD can be classified by types. In the western portion of the site, the water consists of a calcium magnesium bicarbonate type. In the north, the water consists of a sodium chloride type; in the east, the water consists of a mixture of these types, with sulfate as one of the major anions at certain locations. From data published for the deep wells existing on the site, it appears that contamination has not occurred, although, in the case

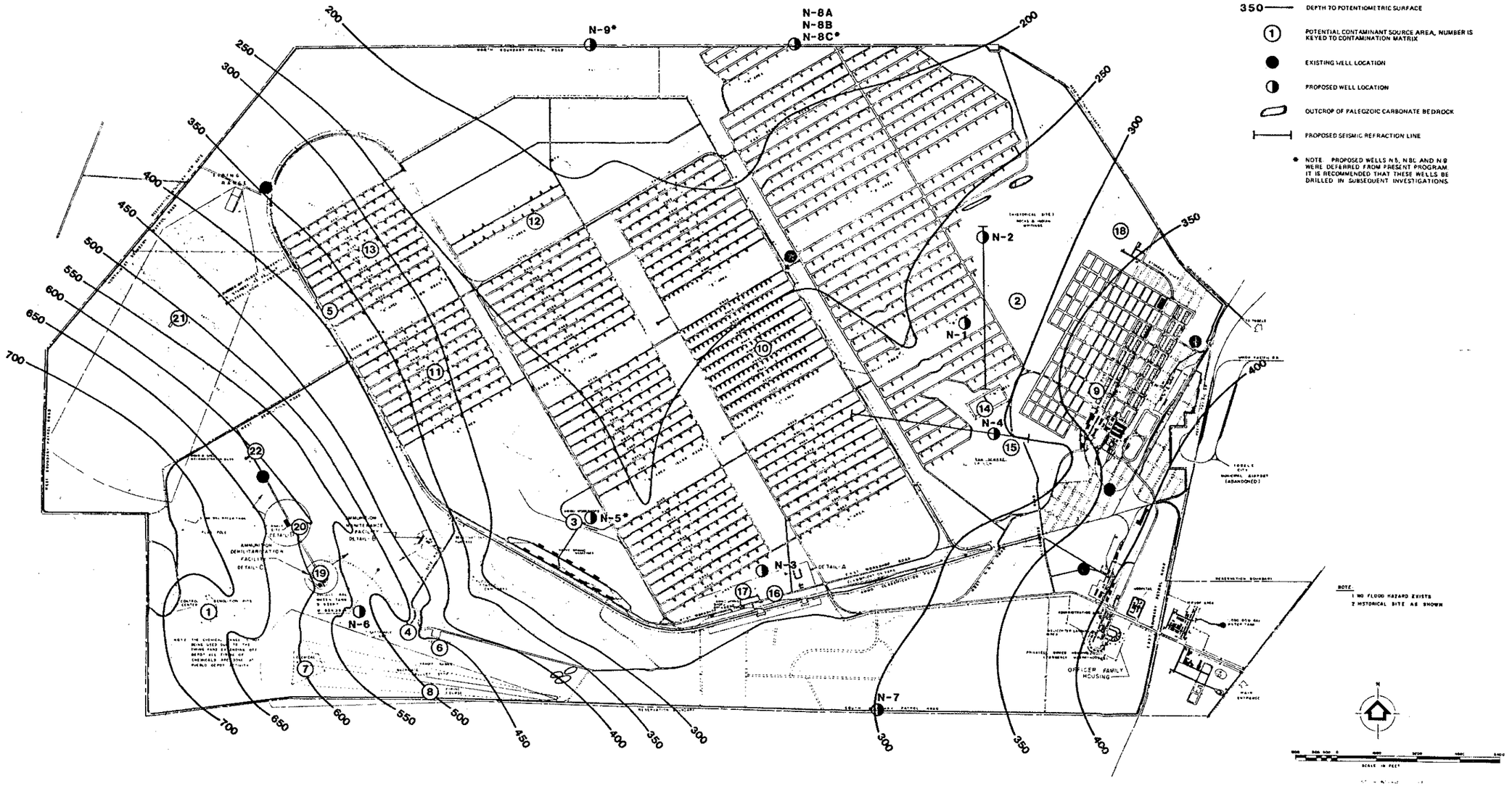


PLATE III

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TOOELE ARMY DEPOT
NORTHERN AREA

DEPTH TO STATIC WATER LEVEL, LOCATION OF CONTAMINATION SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

11-81

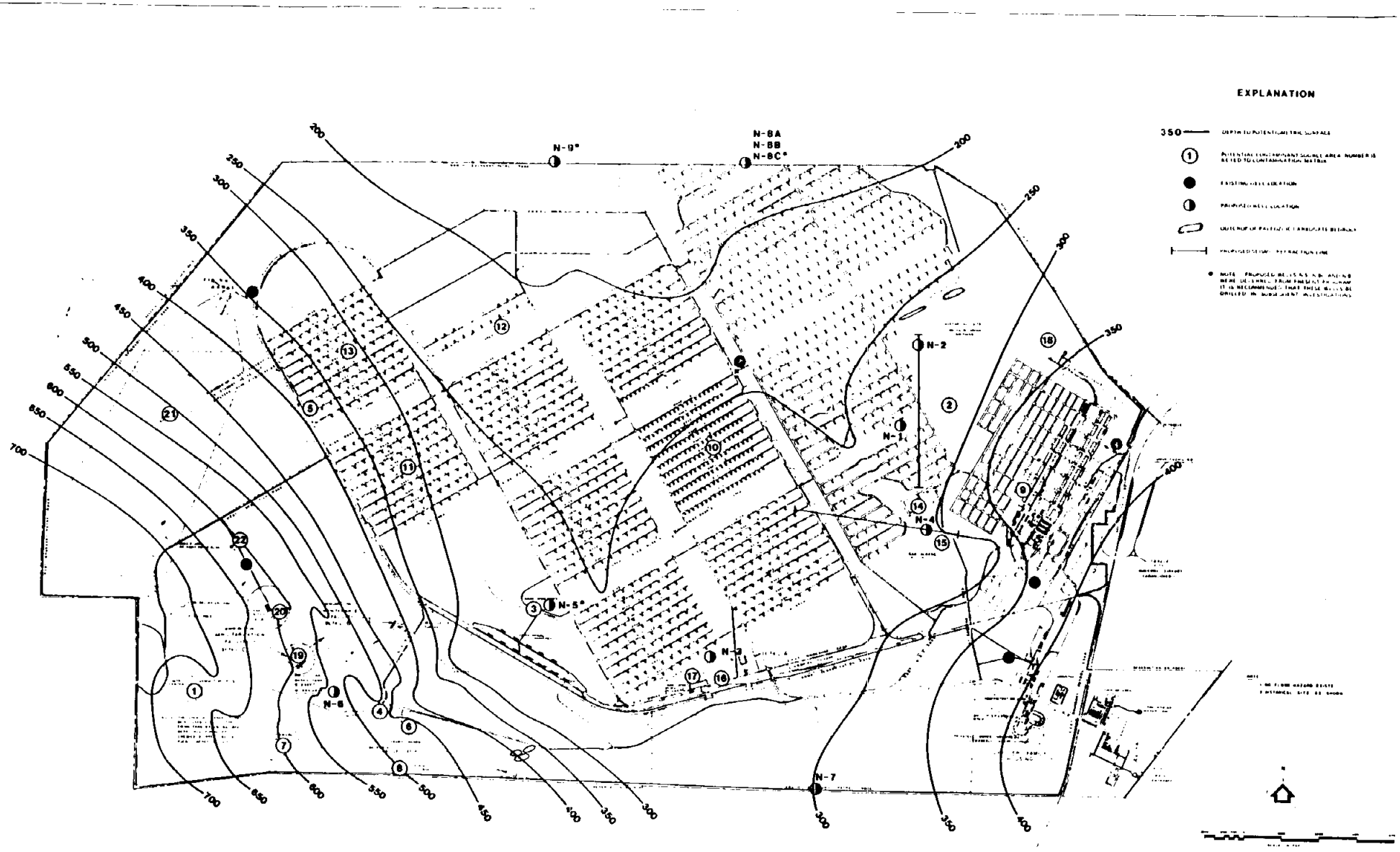


PLATE III

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DEPTH TO STATIC WATER LEVEL, LOCATION OF CONTAMINATION SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

of Well 1, there has been a significant increase in sulfate and chloride. The chloride content also increased over 10% in wells (C-3-4)31bca and (C-3-4)32bcc from the mid 1950's to the early 1960's (Gates, 1965). Razem and Steiger (1981) state that the chloride content of the water increases as water moves through the valley fill and that a change in gradients due to pumping may induce a mixture of waters of the sodium chloride type with those of the calcium bicarbonate type.

The nearest offsite wells that have the potential to be contaminated are one to two miles north of the northwest corner of the site. In addition, published well information indicates that the town of Grantsville is expanding southward towards the site boundary. There are large producing irrigation wells in this area. Also, several wells used for domestic drinking water are located near the site. Inorganic chemical analyses of water taken from these wells do not indicate that contamination has occurred (Razem and Steiger, 1981) and no additional recent chemical data were available. There are no activities on the depot in the immediate vicinity of these wells which could contribute to the potential contamination of these wells. Further information is needed in this area to define the effects of depot activity on a regional scale.

### A-1.1.2 South Area of Tooele Army Depot

#### A-1.1.2.1 Topographic Setting and Surface Drainage

The South Area of TEAD is located in Rush Valley. Rush Valley is considered to be a topographically closed valley. The north trending valley is bordered by the Oquirrh and East Tintic Mountains on the east, the Stansbury and Onaqui Mountains on the west, and the Sheeprock and West Tintic Mountains on the

south. Rush Valley is topographically separated from Tooele Valley to the north by the Stockton Bar, which is a bay-mouth bar built between South Mountain and the Oquirrh Mountains by Pleistocene Lake Bonneville (Everitt and Kaliser, 1980). The mountain crests range in elevation from approximately 9000 feet (Sheeprock Mountains) to 10,500 feet (Oquirrh Mountains). The slope of the valley floor is northward to Rush Lake, which has an altitude of approximately 5000 feet. The Rush Valley floor is approximately 30 miles long and 17 miles across at its maximum width.

No surface water leaves Rush Valley. Surface water is lost by infiltration on the alluvial slopes of the valley, and by evapotranspiration in vegetated areas. A small amount of surface water reaches either playas in the east central part of the valley, or Rush Lake at the northern boundary of the valley, where it is evaporated.

There is no permanent surface-water flow in the South Area of the TEAD except the perennial stream that crosses the northeast boundary. This stream loses all of its flow after flowing less than two miles within the South Area. The ephemeral drainage network is shown in Plate IV. Surface water would flow in the southwestern direction as evidenced by Ophir Creek, an intermittent stream draining Ophir Canyon. This stream, generally dry except during moderate rainfall events, flows across the site until it infiltrates completely into the alluvium somewhere around Ammunitions Storage and Igloos Area 9.

A-1.1.2.2 Climate and Vegetation

The climatic regime in the South Area is similar to that discussed for the North Area, but slightly more arid. The annual precipitation is less than 10 inches/year (Hood et. al., 1969). However, the monthly distribution of precipitation is the same as for the North Area. The potential recharge to the

## EXPLANATION

**SYMBOLS**

- SURFACE DRAINAGE
- LINE OF ONE INCH OF RECHARGE. RECHARGE IN AREA TO NORTH OF LINE IS GREATER THAN 1.0 INCH PER YEAR. AREA TO SOUTH IS LESS THAN 1.0 INCH PER YEAR
- STORM AND SEWER LINES
- SOIL TYPE BOUNDARY
- (1) POTENTIAL CONTAMINANT SOURCE AREA. NUMBER IS KEYED TO CONTAMINATION MATRIX
- △ SURFACE WATER SAMPLE LOCATION
- ▲ SURFACE WATER AND SEDIMENT SAMPLE LOCATION

**SOIL TYPES**

- DB DESERT BENCH
- UL UPLAND LOAM

SCALE IN FEET

CONTOUR INTERVAL 20 FEET

# PLATE IV

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PROJECT NO.: 82-160

TOOELE army DEPOT
SOUTHERN AREA

SURFACE DRAINAGE, SANITARY AND STORM SEWER LOCATIONS, SOIL/VEGETATION COMPLEXES, ANNUAL RECHARGE TO GROUNDWATER, CONTAMINATION SOURCE LOCATIONS, AND PROPOSED SEDIMENT AND SURFACE WATER SAMPLING SITES

11-81

ground-water system as measured by the difference between monthly preciptation and monthly potential evapotranspiration is estimated to be less than one inch per year over most of the South Area, using the same methods used for the North Area. Hood et. al. (1969) indicated an average recharge rate of about 0.5 inches per year for the average recharge to the entire Rush Valley.

The distribution of vegetation for the South Area is shown in Plate IV. The description of the vegetation types is the same as described in Section A-1.1.1.2 for the North Area, although only two types of vegetation/soil complexes are found on the South Area.

A-1.1.2.3 Geology

The surficial and subsurface geology of the South Area of the TEAD is very similar to that of the North. Figure 2 shows the surficial geology. Lacustrine, colluvial, and alluvial sediments comprise most of the surficial geology and possibly extend to a depth of 500 feet (150 meters) or more. A log of the TEAD South Area Well No. 1 shows that 404 feet of typical valley-fill type sediments were penetrated. The basin fill is mostly of Tertiary age with Quaternary deposits toward the center of the site forming thin gravel caps on pediments eroded on the Salt Lake Group.

The geology of Rush Valley exhibits typical Basin and Range structure, as it is composed of a number of small horsts and grabens.

The South Area of the TEAD is situated on one of these structural features known as the Mid-Valley Horst. This feature was identified by the presence of the two nearly parallel series of fault scarps, trending northwest to southeast, just off the northern portion of the southern TEAD area (Everitt and Kaliser, 1980). The western scarps are down-thrown to the west, and the eastern scarps are down-thrown to the east.

A fault associated with the Mid-Valley Horst fault system runs north-south near the center of the TEAD across the Ammunitions Storage and Igloos Area 9. The fault scarps are in the recent sediments and do not expose bedrock at the surface.

The influence of this structural feature is unknown. Existing water-level data was too scarce in Phase I to define any effect of this feature on potential gradients or directions of flow. It was assumed prior to Phase II, that the bedrock associated with the Mid-Valley Horst is deep enough that its effects on the area's ground-water flow are minimal.

A-1.1.2.4 Hydrogeology

Ground water is assumed to occur under unconfined conditions in the South Area, at least in the upper part of the ground-water system. As in the North Area, local confined conditions may exist. This determination must be made after analysis of additional data.

Ground water in Rush Valley moves toward two different discharge areas. A limiting ground-water flowline running northeast to southwest from the eastern edge of the Onaqui Mountains to the mouth of Ophir Canyon influences the direction of the regional movement of ground water. This limiting flowline also runs through the southern area of the TEAD, in the vicinity of the CAMDS building.

The location of the limiting flowline may be considerably in error since the data used to compile the potentiometric surface was sparce. Plate V shows the preliminary potentiometric surface based upon published maps, as well as a few representative ground-water flow directions. The most obvious feature about

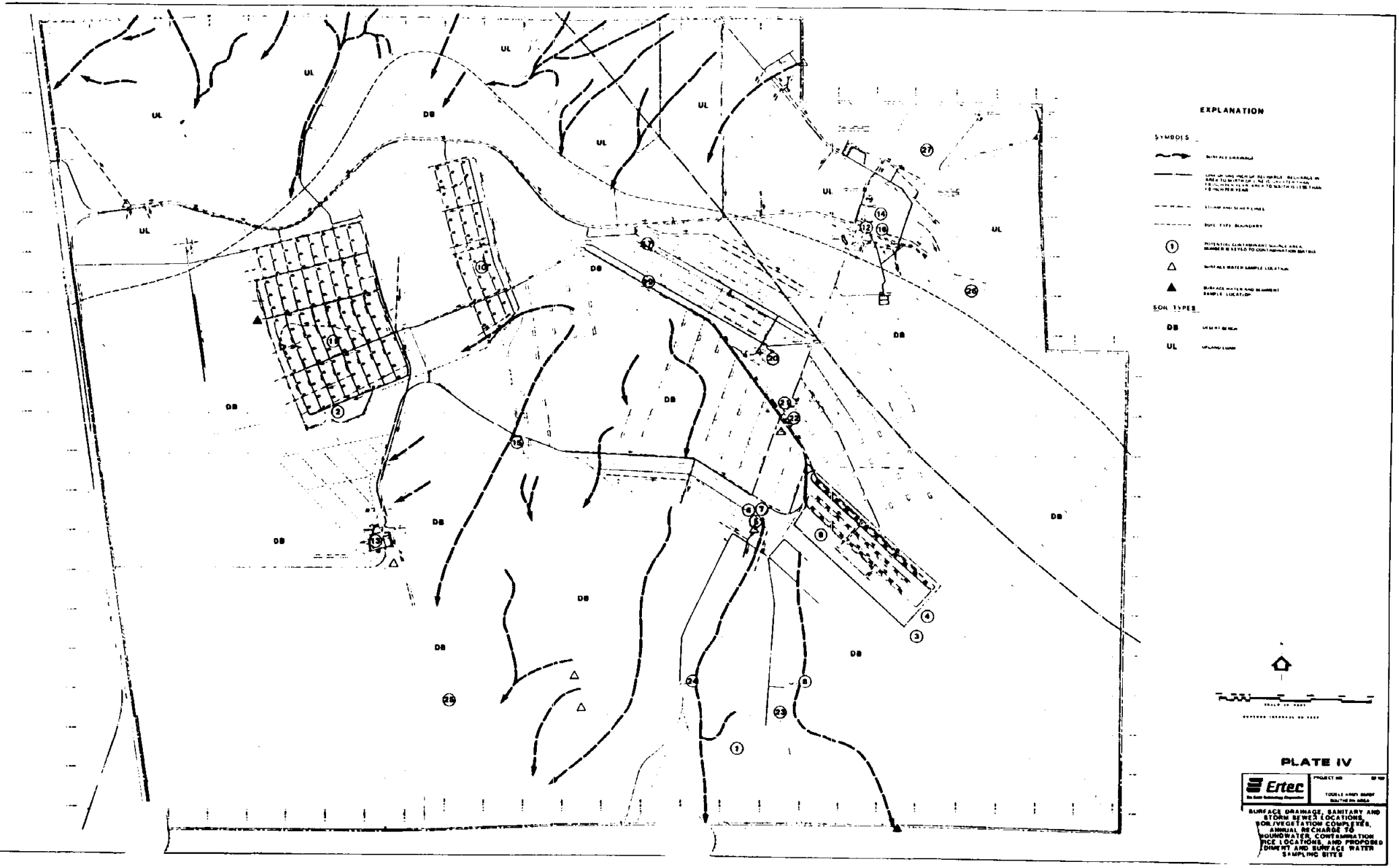
EXPLANATION
SYMBOLS
SOIL TYPES
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PLATE IV
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SURFACE DRAINAGE, SANITARY AND STORM SEWER LOCATIONS, FOR/VEGETATION COMPLEXES, ANNUAL RECHARGE TO GROUNDWATER, CONTAMINATION SOURCE LOCATIONS, AND PROPOSED DIRECT AND SURFACE WATER SAMPLING SITES

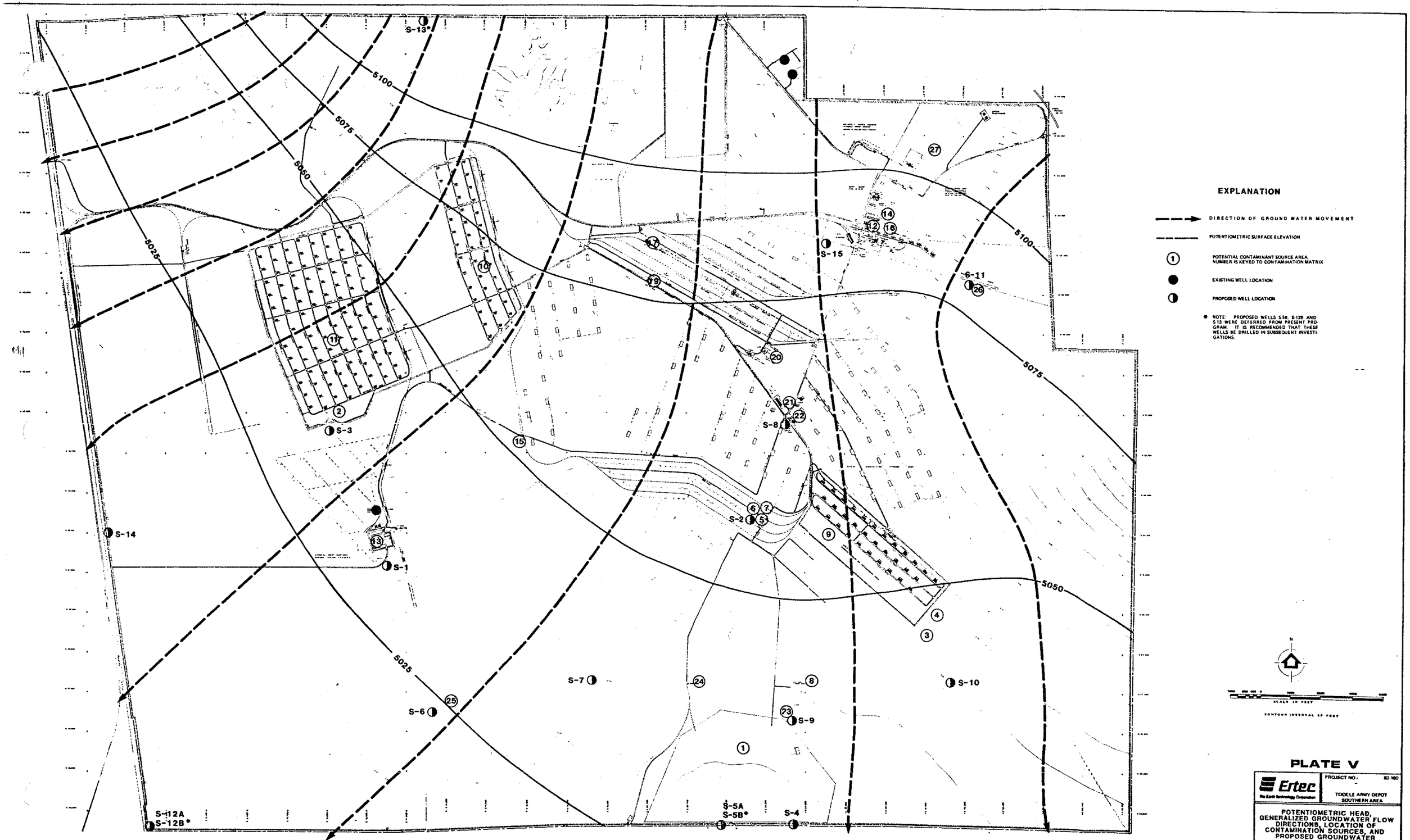


**PLATE V**

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PROJECT NO.: 82.160

TOOELE ARMY DEPOT
SOUTHERN AREA

POTENTIOMETRIC HEAD, GENERALIZED GROUNDWATER FLOW DIRECTIONS, LOCATION OF CONTAMINATION SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

11-81

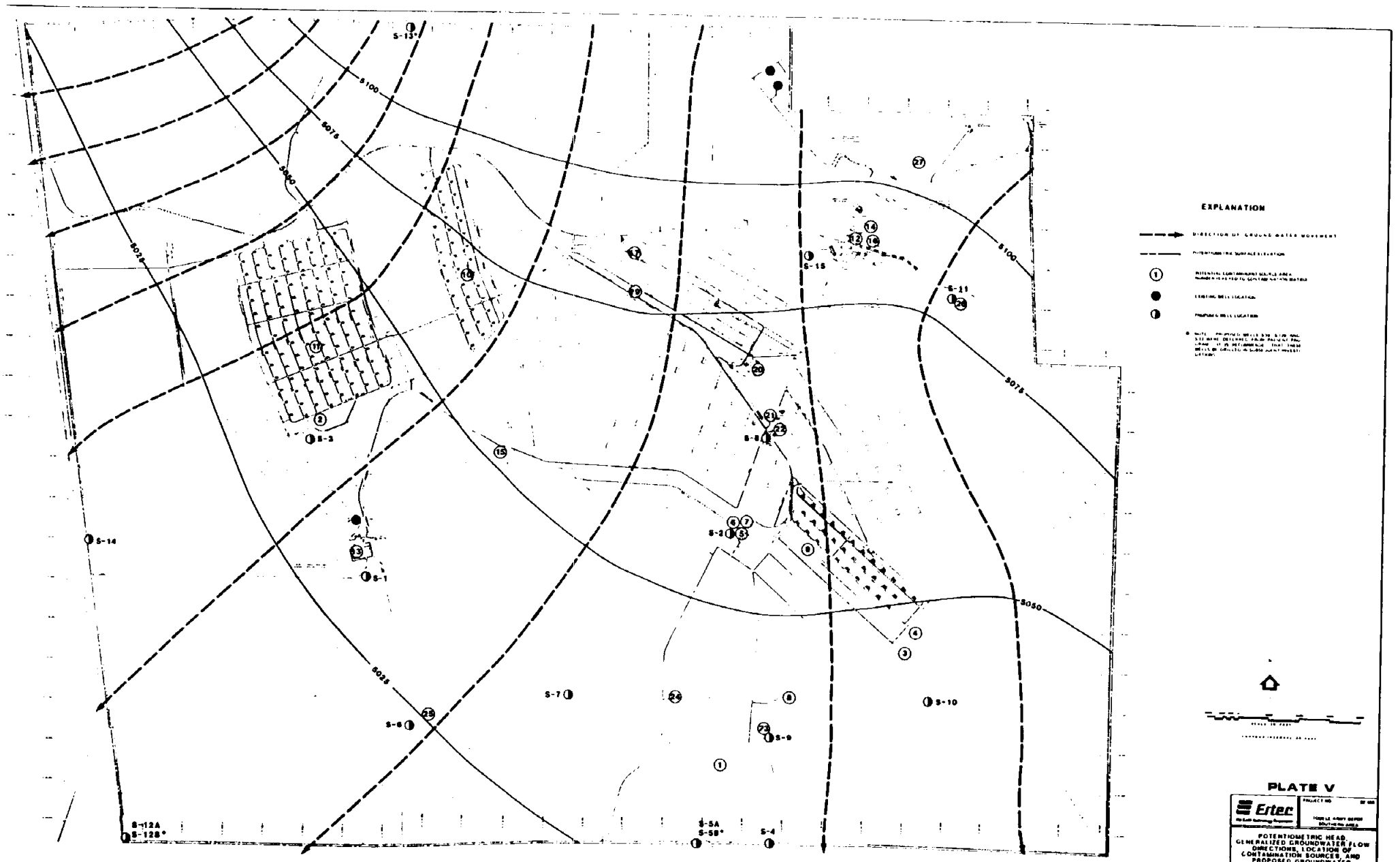


PLATE V

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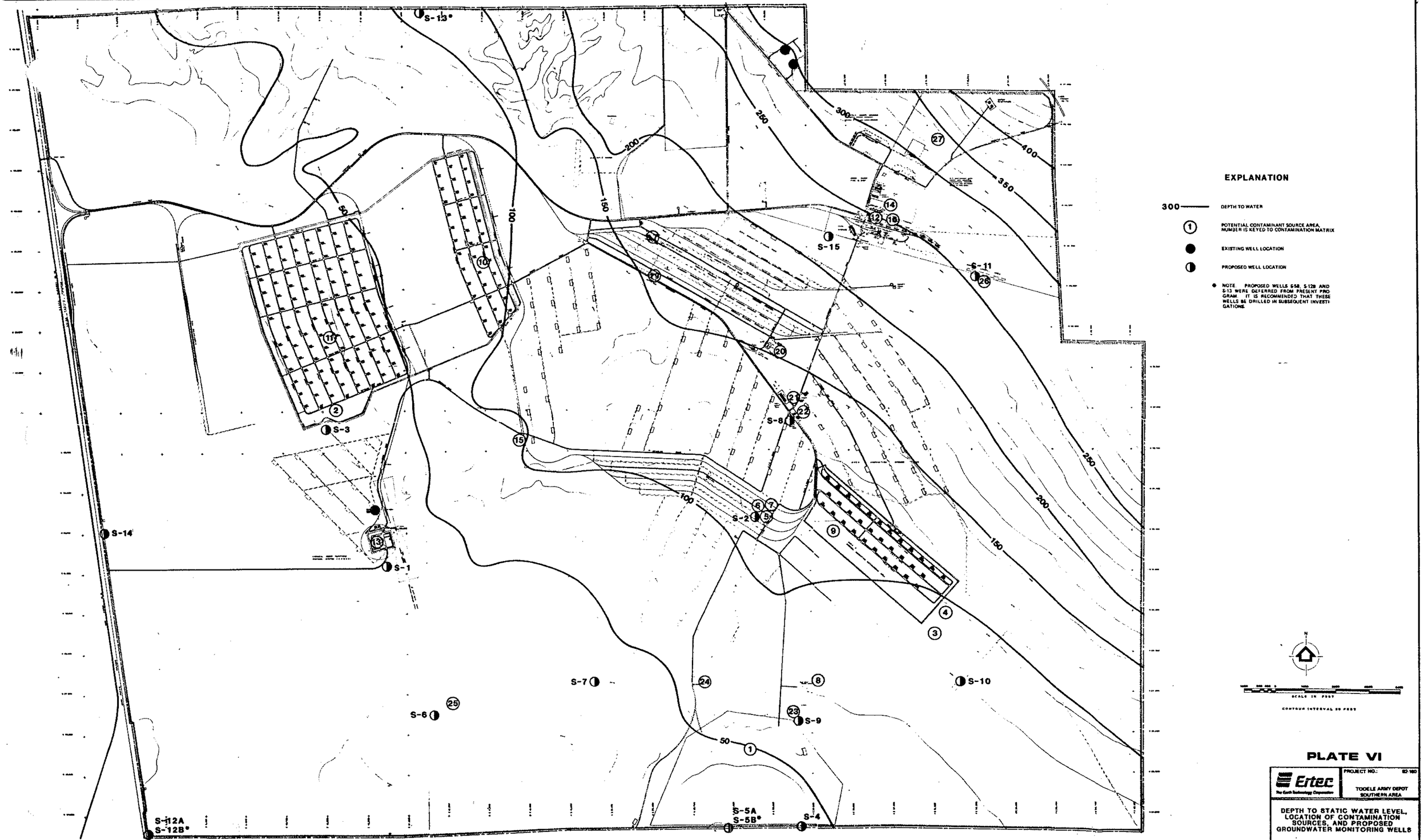
POTENTIOMETRIC HEAD, GENERALIZED GROUNDWATER FLOW DIRECTIONS, LOCATION OF CONTAMINATION SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

the head distribution in the South Area is the extremely low gradients compared to the North Area. This is caused by the South Area being located further from recharge areas at the valley rim than the North Area. The maximum head loss across the South Area is only 100 feet, while that across the North Area is several hundred feet.

Ephemeral streams flowing across alluvial fans provide recharge to the ground-water system in addition to that derived from precipitation. Ground-water discharge areas that receive water that has passed through the ground-water system at the South Area are generally very distinct from the boundaries of the Rush Valley. A small amount (5000 acre-feet, Razem and Steiger, 1981) of subsurface outflow may occur beneath the Stockton Bar in the north end of Rush Valley. South of the limiting flowline, ground water moves in a general eastward direction, and subsurface outflow may occur in the vicinity of Five, Ten, and Twelve-mile passes, at the northern edge of the East Tintic Mountains.

The notable exception to the distant discharge points for ground water that moves under the South Area is the playa that exists just to the southwest of the TEAD South Area. The depth to water is shallow in this area, and the existence of phreatophytic vegetation indicates that a significant amount of ground water is discharged in this area by evapotranspiration. This is significant because the evapotranspiration process will tend to concentrate any non-volatile contaminants in the ground water.

The depth to water in the South Area ranges from over 300 feet in the northeast corner to less than 15 feet in the southwest corner as shown on Plate VI.




# PLATE VI

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PROJECT NO.: 82-160

TOOELE ARMY DEPOT
SOUTHERN AREA

DEPTH TO STATIC WATER LEVEL, LOCATION OF CONTAMINATION SOURCES, AND PROPOSED GROUNDWATER MONITORING WELLS

11-81

yields a factor score of six. The total score for waste characteristics is the sum of the factor scores, or 15 out of a possible total of 15.

5. Targets. Factor 1, water use, is assigned a value of two because all water flowing to the south in this area will be used for stock watering. A weighting factor of three brings the total factor score to six.

   Factor 2, the population served, is the minimum value of one since there are very few people who could be affected in this area. A high weighting factor of six produces a factor score of six. The total score for this category is 12 out of a possible total of 39.

6. Waste Quantity. From the literature review and field inspection, we have determined that there is a great likelihood that reasonably large amounts of potential contaminants are being handled at this facility. Therefore, there is a possibility that some of this material is being lost through the waste-water process. We have assigned a maximum value of four to this category mainly because of the relatively large quantities of water being lost here.

The total score for this source is the product of the category scores, or 10 x 22 x 3 x 15 x 12 x 4 for a total score of 475,200. Normalized to the total possible score of 1,965,600, this becomes 24%, which is the highest rank in the South Area.

## A-3 Hazard Ranking Work Sheets

The following buildings in the north area do not have ground water or surface water route work sheets because the containment score is zero, giving a total score of zero:

North Area

| Building |
|---|
| T-31 |
| S-33 |
| 8, 10 |
| TL-23 |
| T-37 |
| T-45 |
| 51 |
| 52 |
| 501 |
| 507 |
| 510, 511 |
| 513 |
| 518 |
| 539 |
| 600 |
| 602-604 |
| 607-609 |
| 611-615 |
| 619, 620 |
| 637 |
| 644 |
| 647 |
| Photo Lab |
| S-107 |
| 605 |
| A-306 |
| Area C |
| Area G |
| Area J |
| Area K |

# GROUND WATER WORK SHEETS

## NORTH AREA

SITE ID: North 1 Demolition Grounds

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 31,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.6 | |

SITE ID: North 2 Industrial Waste Outfall Area

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCOR |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE | | | | |
| | TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 22 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 1,544,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 78.6 | |

SITE ID: North 3 L-23 Pond

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 140,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 7.1 | |

SITE ID: North 4 1303 Wastewater Pond

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 126,360 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 6.4 | |

SITE ID: North 5 K 281 PCB Spill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 21,840 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.1 | |

SITE ID: North 6 Surveillance Test Site

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 5,850 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 7 Chemical Range

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | 10 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 46,800 | 1,965,600 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 2.4 | |

SITE ID: North 8 Firing Range

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | (1) | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 7,800 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.4 | |

SITE ID: North 9 Radioactive Storage Yard

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 1,404 | 1,965,600 |
| ? | NORMALIZED SCORE (PERCENT) | | | 0.07 | |

SITE ID: North 14 Sewage Lagoon

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 218,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 11.1 | |

SITE ID: North 14A Old Sewage Lagoons

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 655,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 33.3 | |

SITE ID: North 15 Sanitary Landfill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 873,600 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 44.4 | |

SITE ID: North 16 Septic Tank 56 from Building S-33

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 463,320 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 23.6 | |

SITE ID: North 17 S-45 Ponds and 67 (Laundry ponds)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 1,263,600 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 64.3 | |

SITE ID: North 18 Radioactive Waste Storage Area S-75

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | (2) 5 | 1 | 2 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 2 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 2808 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.1 | |

SITE ID: North 19 AEO Demilitarization Facility (1370-1380)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 8 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 6,240 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 20 AEO Deactivation Furnace (1351-1357)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | (1) | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 32,760 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.7 | |

SITE ID: North 21 AEO Abandoned Test Facility

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 5850 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 22 Shell Building

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | (1) | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 10,920 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.6 | |

# SURFACE WATER WORK SHEET

## NORTH AREA

SITE ID: North 1 Demolition Grounds

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 259,200 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 13.3 | |

SITE ID: North 2 Industrial Waste Outfall Area

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 38 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 410,400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 21.1 | |

yields a factor score of six. The total score for waste characteristics is the sum of the factor scores, or 15 out of a possible total of 15.

5. Targets. Factor 1, water use, is assigned a value of two because all water flowing to the south in this area will be used for stock watering. A weighting factor of three brings the total factor score to six.

   Factor 2, the population served, is the minimum value of one since there are very few people who could be affected in this area. A high weighting factor of six produces a factor score of six. The total score for this category is 12 out of a possible total of 39.

6. Waste Quantity. From the literature review and field inspection, we have determined that there is a great likelihood that reasonably large amounts of potential contaminants are being handled at this facility. Therefore, there is a possibility that some of this material is being lost through the waste-water process. We have assigned a maximum value of four to this category mainly because of the relatively large quantities of water being lost here.

The total score for this source is the product of the category scores, or 10 x 22 x 3 x 15 x 12 x 4 for a total score of 475,200. Normalized to the total possible score of 1,965,600, this becomes 24%, which is the highest rank in the South Area.

## A-3 Hazard Ranking Work Sheets

The following buildings in the north area do not have ground water or surface water route work sheets because the containment score is zero, giving a total score of zero:

North Area

| Building |
|---|
| T-31 |
| S-33 |
| 8, 10 |
| TL-23 |
| T-37 |
| T-45 |
| 51 |
| 52 |
| 501 |
| 507 |
| 510, 511 |
| 513 |
| 518 |
| 539 |
| 600 |
| 602-604 |
| 607-609 |
| 611-615 |
| 619, 620 |
| 637 |
| 644 |
| 647 |
| Photo Lab |
| S-107 |
| 605 |
| A-306 |
| Area C |
| Area G |
| Area J |
| Area K |

# GROUND WATER WORK SHEETS

## NORTH AREA

SITE ID: North 1 Demolition Grounds

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 31,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.6 | |

SITE ID: North 2 Industrial Waste Outfall Area

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCOR |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE | | | | |
| | TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 22 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 1,544,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 78.6 | |

SITE ID: North 3 L-23 Pond

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 140,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 7.1 | |

SITE ID: North 4 1303 Wastewater Pond

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 126,360 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 6.4 | |

SITE ID: North 5 K 281 PCB Spill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 21,840 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.1 | |

SITE ID: North 6 Surveillance Test Site

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 5,850 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 7 Chemical Range

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | 10 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 46,800 | 1,965,600 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 2.4 | |

SITE ID: North 8 Firing Range

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 7,800 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.4 | |

SITE ID: North 9 Radioactive Storage Yard

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 1,404 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.07 | |

SITE ID: North 14 Sewage Lagoon

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 218,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 11.1 | |

SITE ID: North 14A Old Sewage Lagoons

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 655,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 33.3 | |

SITE ID: North 15 Sanitary Landfill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 873,600 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 44.4 | |

SITE ID: North 16 Septic Tank 56 from Building S-33

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 463,320 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 23.6 | |

SITE ID: North 17 S-45 Ponds and 67 (Laundry ponds)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 1,263,600 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 64.3 | |

SITE ID: North 18 Radioactive Waste Storage Area S-75

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | (2) 5 | 1 | 2 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 2 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 2808 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.1 | |

SITE ID: North 19 AEO Demilitarization Facility (1370-1380)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 8 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 6,240 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 20 AEO Deactivation Furnace (1351-1357)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 32,760 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.7 | |

SITE ID: North 21 AEO Abandoned Test Facility

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 5850 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: North 22 Shell Building

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 39 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 10,920 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.6 | |

# SURFACE WATER WORK SHEET

## NORTH AREA

SITE ID: North 1 Demolition Grounds

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 259,200 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 13.3 | |

SITE ID: North 2 Industrial Waste Outfall Area

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 38 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 410400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 21.1 | |

SITE ID: North 3 L-23 Pond

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 16 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 207,360 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 10.7 | |

SITE ID: North 4 1303 Wastewater pond

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 14 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 90,720 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 4.7 | |

SITE ID: North 5 K 281 PCB Spill

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 38 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 22,800 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 1.2 | |

SITE ID: North 6 Surveillance Test Site

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 54,000 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 2.8 | |

SITE ID: North 7 Chemical Range

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 216,000 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 11.1 | |

SITE ID: North 8 Firing Range

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 43,200 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 2.2 | |

SITE ID: North 9 Radioactive Storage Yard

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 (3) | 2 | 6 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 1,944 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.1 | |

SITE ID: North 14 Sewage Lagoon

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | (0) 1 2 3 | 2 | 0 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 362,880 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 18.7 | |

SITE ID: North 14A Old Sewage Lagoons

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | (0) 1 2 3 | 2 | 0 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 544,320 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 28 | |

SITE ID: North 15 Sanitary Landfill

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 806,400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 41.5 | |

SITE ID: North 16 Septic Tank 56 from Building S-33

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | (0) 1 2 3 | 2 | 0 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 18 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 142,560 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 7.3 | |

SITE ID: North 17 S-45 Ponds and 67 (Laundry pond)

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | (0) 1 2 3 | 2 | 0 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 777,600 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 40 | |

SITE ID: North 18 Radioactive Waste Storage Area S-75

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | (2) 5 | 1 | 2 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 2 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 10 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 40 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 7,200 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.4 | |

SITE ID: North 19 AEO Demilitarization Facility (1370-138

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 10 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 8 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 28,800 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 1.5 | |

SITE ID: North 20 AEO Deactivation Furnace (1351-1357)

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 36 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 15,120 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.8 | |

SITE ID: North 21 AEO Abandoned Test Facility

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 38 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 3,800 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.2 | |

SITE ID: North 22 Shell Building

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | 1 2 3 4 (5) | 6 | 30 | 30 |
| | TOTAL TARGETS SCORE | | | 38 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 10,640 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.5 | |

GROUND WATER WORK SHEET

SOUTH AREA

SITE ID: South 1 Demilitarization Area and Pits

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 172,800 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 8.8 | |

SITE ID: South 2 Gravel Pit (area 10)

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 (3) 4 5 | 6 | 18 | 30 |
| | TOTAL TARGETS SCORE | | | 27 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 194,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 9.9 | |

SITE ID: South 3 Leakers in Area 2

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 16,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.8 | |

SITE ID: South 4 Pit - Area 2

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 64,800 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 3.3 | |

SITE ID: South 5 T-600

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | (0) | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | (0) | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | (0) | |

SITE ID: South 6, 7 T-600 Pond, T-600 Leach Pit

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 22 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 356,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 18 | |

SITE ID: South 8 T-3250/3251 and Associated Pits

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 20,160 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.0 | |

SITE ID: South 9 Area 2 and Holding Area

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 32,400 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 1.6 | |

SITE ID: South 10 Area 9 and Spill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 (3) 4 5 | 6 | 18 | 30 |
| | TOTAL TARGETS SCORE | | | 27 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 4,536 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.2 | |

SITE ID: South 11 Area 10

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 (3) | 3 | 9 | 9 |
| | POPULATION SERVED | 1 2 (3) 4 5 | 6 | 18 | 30 |
| | TOTAL TARGETS SCORE | | | 27 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 6,804 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: South 12 S-118

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | ( ) | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | ( ) | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | ( ) | |

SITE ID: South 13 CAMDS

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 (3) 6 | 2 | 6 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 22 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 475,200 | 1,965,600 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 24 | |

SITE ID: South 14 S-108

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | 0 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 15 C-4002

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 9,600 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.5 | |

SITE ID: South 16 S-119

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 7 | TOTAL SCORE | | | 480 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.02 | |

SITE ID: South 17 Building 520

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | (0) | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | (0) | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | (0) | |

SITE ID: South 18 Building 532

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | (0) | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | (0) | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | (0) | |

SITE ID: South 19 Building 533

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 8 | 2 | | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 6 | 2 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 28 |
| 3 | CONTAINMENT | (0) 1 2 3 | 1 | (0) | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 2 3 | 3 | | 9 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 39 |
| 6 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 7 | TOTAL SCORE | | | (0) | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | (0) | |

SITE ID: South 20 S-541

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 6 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 5760 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: South 21 Building 553

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 5280 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.3 | |

SITE ID: South 22 554 and Holding Ponds

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 72,900 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 4.0 | |

SITE ID: South 23 Holding Area - Leakers, demilitarizatio

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 64,800 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 3.3 | |

SITE ID: South 24 S-3200, Old Demilitarization Shack

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 6 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 12 | 30 |
| | TOTAL TARGETS SCORE | | | 18 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 12,960 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.7 | |

SITE ID: South 25 Windrow - Thermite Disposal

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 12 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 7 | TOTAL SCORE | | | 80,640 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 4.1 | |

SITE ID: South 26 Sanitary Landfill

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 (2) 3 6 | 2 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 43,200 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 2.2 | |

SITE ID: South 27 Gravel Pit

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | (2) 5 | 1 | 2 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 2 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | (0) 8 | 2 | 0 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 (1) 2 3 6 | 2 | 2 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 28 |
| 3 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 7 | TOTAL SCORE | | | 960 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 0.05 | |

SITE ID: South 28 Craters

## GROUND-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. SCORE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | UNSATURATED ZONE TRAVEL INDEX | 0 (8) | 2 | 16 | 16 |
| | SATURATED ZONE FLOW PATH DISTANCE TO WELL BOUNDARY | 0 1 2 3 (6) | 2 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 28 | 28 |
| 3 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 4 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTENCE IN SUBSURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 5 | TARGETS | | | | |
| | WATER USE | 1 (2) 3 | 3 | 6 | 9 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 12 | 39 |
| 6 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 7 | TOTAL SCORE | | | 105,840 | 1,965,600 |
| | NORMALIZED SCORE (PERCENT) | | | 5.4 | |

# SURFACE WATER WORK SHEET

## SOUTH AREA

SITE ID: South 1 Demilitarization Area Pits

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 16 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 (3) | 2 | 6 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 15 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 288,000 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 14.8 | |

SITE ID: South 2 Gravel Pit (area 10)

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 62,400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 3.2 | |

SITE ID: South 3 Leakers in Area 2

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 11,700 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.6 | |

SITE ID: South 4 Pit-area 2

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 46,800 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 2.4 | |

SITE ID: South 5 T-600

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 7 | TOTAL SCORE | | | 0 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 6, 7 T-600 pond, T-600 leach pit

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 (2) 3 | 4 | 8 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 16 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 280,800 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 14.4 | |

SITE ID: South 8 T-3250/3251 and Associated P.its

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 20 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 36,400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 1.9 | |

SITE ID: South 9 Area 2 and Holding Area

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 10 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 58,500 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 3.0 | |

SITE ID: South 10 Area 9 and Spill

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 4 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 11 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 1,848 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.1 | |

SITE ID: South 11 Area 10

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 2 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 14 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 1,092 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.06 | |

SITE ID: South 12 S-118

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | ○ | 3 |
| 7 | TOTAL SCORE | | | ○ | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | ○ | |

SITE ID: South 13 CAMDS

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 140,400 | 1,944,000 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 7.2 | |

SITE ID: South 14 S-108

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 7 | TOTAL SCORE | | | 0 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 15 C-4002

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 1 2 (3) | 4 | 12 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 22 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 10 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 11 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 48,400 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 2.5 | |

SITE ID: South 16 S-119

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | (1) | 1 | 1 | |
| | TOTAL SOURCE TYPE SCORE | | | 1 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 8 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 9 | 15 |
| 4 | WASTE QUANTITY | (1) 2 3 4 | 1 | 1 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 9 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 1,296 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.07 | |

SITE ID: South 17 Building 520

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 7 | TOTAL SCORE | | | 0 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 18 Building 532

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 7 | TOTAL SCORE | | | 0 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 19 Building 533

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 2 3 | 2 | | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 3 | 2 | | 6 |
| | FLOOD POTENTIAL | 0 1 2 3 | 4 | | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 3 | 1 | | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 3 | 2 | | 6 |
| | TOXICITY | 0 1 2 3 | 2 | | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | | 15 |
| 4 | WASTE QUANTITY | 1 2 3 4 | 1 | | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | 1 2 3 | 3 | | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 3 | 2 | | 6 |
| | POPULATION SERVED | 1 2 3 4 5 | 6 | | 30 |
| | TOTAL TARGETS SCORE | | | | 45 |
| 6 | CONTAINMENT | (0) 1 2 3 | 1 | 0 | 3 |
| 7 | TOTAL SCORE | | | 0 | 1,944,000 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 0 | |

SITE ID: South 20 S-541

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 6 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 11 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 7,920 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.4 | |

SITE ID: South 21 Building 553

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | 5 | |
| | GENERATED OR USED | 2 (5) | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 11 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 7,260 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.4 | |

SITE ID: South 22 554 and Holding Ponds

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 11 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 (1) 2 3 | 2 | 2 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 11 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 21,780 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 1.1 | |

SITE ID: South 23 Holding Area: Leakers, Demilitarization

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 14 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 2 (3) | 1 | 3 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 2 (3) | 2 | 6 | 6 |
| | TOXICITY | 0 1 2 (3) | 2 | 6 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 15 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 81,900 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 4.2 | |

SITE ID: South 24 S-3200, Old Demilitarization Shack

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | (5) 10 | 1 | 5 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 2 (3) | 2 | 6 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 14 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 6 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 2 (3) | 2 | 6 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 15 | 45 |
| 6 | CONTAINMENT | 0 (1) 2 3 | 1 | 1 | 3 |
| 7 | TOTAL SCORE | | | 12,600 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 0.6 | |

SITE ID: South 25 Windrows - Thermite Disposal

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 1 (2) 3 | 2 | 4 | 6 |
| | FLOOD POTENTIAL | (0) 1 2 3 | 4 | 0 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 6 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 2 3 (4) | 1 | 4 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 43,680 | 1,944,000 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 2.2 | |

SITE ID: South 26 Sanitary Landfill

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 (10) | 1 | 10 | |
| | GENERATED OR USED | 2 5 | 1 | | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 10 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 8 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | 1 (2) 3 | 1 | 2 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 8 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 9 | 45 |
| 6 | CONTAINMENT | 0 1 2 (3) | 1 | 3 | 3 |
| 7 | TOTAL SCORE | | | 51,840 | 1,944,000 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 2.7 | |

SITE ID: South 27 Gravel Pit

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | (2) 5 | 1 | 2 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 2 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 1 (2) 3 | 2 | 4 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | (0) 1 2 3 | 2 | 0 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 8 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 5 | 15 |
| 4 | WASTE QUANTITY | 1 (2) 3 4 | 1 | 2 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | (0) 1 2 3 | 2 | 0 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 9 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 2,880 | 1,944,000 |
| 8 | NORMALIZED SCORE (PERCENT) | | | 0.1 | |

SITE ID: South 28 Craters

## SURFACE-WATER ROUTE WORK SHEET

| | RATING CATEGORY | ASSIGNED VALUE | MULTIPLIER | SCORE | MAX. VALUE |
|---|---|---|---|---|---|
| 1 | SOURCE TYPE (CHOOSE ONLY ONE FACTOR) | | | | |
| | DISPOSED | 5 10 | 1 | | |
| | GENERATED OR USED | 2 (5) | 1 | 5 | |
| | STORED | 1 | 1 | | |
| | TOTAL SOURCE TYPE SCORE | | | 5 | 10 |
| 2 | ROUTE CHARACTERISTICS | | | | |
| | SLOPE/INFILTRATION INDEX | 0 (1) 2 3 | 2 | 2 | 6 |
| | DISTANCE TO DEFINABLE DRAINAGE | 0 (1) 2 3 | 2 | 2 | 6 |
| | FLOOD POTENTIAL | 0 (1) 2 3 | 4 | 4 | 12 |
| | TOTAL ROUTE CHARACTERISTICS SCORE | | | 8 | 24 |
| 3 | WASTE CHARACTERISTICS | | | | |
| | PHYSICAL STATE | (1) 2 3 | 1 | 1 | 3 |
| | PERSISTANCE ON SURFACE | 0 1 (2) 3 | 2 | 4 | 6 |
| | TOXICITY | 0 (1) 2 3 | 2 | 2 | 6 |
| | TOTAL WASTE CHARACTERISTICS SCORE | | | 7 | 15 |
| 4 | WASTE QUANTITY | 1 2 (3) 4 | 1 | 3 | 4 |
| 5 | TARGETS | | | | |
| | SURFACE-WATER USE | (1) 2 3 | 3 | 3 | 9 |
| | TRAVEL TIME TO BOUNDARY | 0 1 (2) 3 | 2 | 4 | 6 |
| | POPULATION SERVED | (1) 2 3 4 5 | 6 | 6 | 30 |
| | TOTAL TARGETS SCORE | | | 13 | 45 |
| 6 | CONTAINMENT | 0 1 (2) 3 | 1 | 2 | 3 |
| 7 | TOTAL SCORE | | | 21,840 | 1,944,000 |
| | NORMALIZED SCORE (PERCENT) | | | 1.1 | |

## A-4 Annotated Summary of Key Documents Reviewed for Technical Plan

Many documents and much information, both published and unpublished, were reviewed to prepare this Technical Plan. In addition, information was gathered from Tooele Army Depot, (TEAD) U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), U.S. Army Environmental Hygiene Agency, U.S. Geological Survey, The Soil Conservation Service, and The State of Utah's environmental and technical agencies. TEAD's files relating to facility and site investigations for construction, water supply, and potential contamination also have been evaluated. An annotated summary of the key documents reviewed are given below.

Brantner, K. A., R. B. Pojasek, and E. L. Stover, March 1981, Priority pollutants sample collection and handling: Pollution Engineering, pp. 34-38.

The susceptibility of priority pollutant samples to contamination and degradation of their integrity makes sampling the most important part of a successful sampling and analysis program. It is for this reason rather extensive and special procedures are required for priority pollutant sampling.

Compositing of samples collected over an appropriate time period to be determined by the type of sample, type of facility being sampled, and time varying characteristics of the wastewater discharge is desirable for representative data. However, due to the instability and volatility of some of the priority pollutants only grab samples are meaningful. Composite samples should be collected for the determination of semivolatile organics, pesticides and PCB's, asbestos, and metals. Grab samples should be collected for the determination of volatile organics, total cyanides, and total phenols.

Special attention does not end with sampling, but must continue throughout the analytical part of the program.

Caldwell, S., K. W. Barrett, and S. S. Chang, 1981, Ranking System for Releases of Hazardous Substances in National Conference on Management of Uncontrolled Hazardous Waste Sites, October 28-30, 1981. Washington, D.C.

In recent years, hundreds of incidents involving hazardous substances have occurred in the United States. The Environmental Protection Agency (EPA) has identified over 10,000 inactive hazardous waste sites, many of which continue to threaten the public. In addition, thousands of hazardous substance spills occur each year. The large number of problems and the high costs of investigation and cleanup activities have forced those public agencies responsible for hazardous substances programs to set priorities for response. In general, this has been done at the State level, largely on the basis of professional judgment. In this paper, the authors describe the status of a system currently under development for setting priorities for remedial actions to address hazardous substances releases.

In passing the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), Congress recognized the need for a systematic approach to setting priorities. CERCLA Section 105(8) requires the President to include criteria for setting priorities among releases and potential releases of hazardous substances as a part of the National Contingency Plan. The criteria are to take into account population at risk, the nature of the hazardous substances, the potential for contaminating drinking water supplies, the potential for direct human contact, potential for destruction of sensitive ecosystems, State preparedness and other appropriate factors.

In addition, the Act requires the States to apply these criteria to establish priorities for remedial actions at facilities and submit them to the President. The President must then establish a National Priority List of at least 400 facilities based on the criteria and taking into consideration the States' priorities. The National Priority List is to be used in selecting the most serious hazardous substance problems for remedial action.

In response to the program needs and legal requirements for a system for setting priorities, EPA along with the MITRE Corporation undertook development of a method for ranking facilities according to risks to health and the environment. The objectives of the project were:

-To develop a system for ranking facilities according to risks.

-To develop a system that would give consistent results when applied by various user organizations

-To develop a system that could be applied by the States, with the results then used by EPA to form a national priorities list

Several other considerations were important in shaping the development of the system. Since approximately 400 out of thousands of facilities are to be listed, the system should discriminate most accurately among the very worst problems. In the course of developing a list of at least 400, as many as several thousand facilities might be evaluated using the criteria; thus, costs to collect data and apply the criteria are a major concern. In practice that means that accuracy in results has been balanced against costs of data collection. Finally, from the outset the EPA established the general policy that public health considerations would outweigh environmental effects.

Dunlap, W. J., J. F. McNabb, M. R. Scalf, and R. L. Cosby, 1977, Sampling for Organic Chemicals and Microorganisms in the Subsurface: EPA-600/2-77-176, August 1977, 35 pp.

Analyses of low levels of organic chemicals and microorganisms in subsurface waters and solids are required for realistic assessment of current and potential pollution of ground water, but are particularly difficult to accomplish because of problems in sampling often remote and relatively inaccessible subsurface environments. The report presents procedures currently utilized by the Ground Water Research Branch of the Environmental Protection Agency for sampling for organic pollutants and microorganisms in ground waters and subsurface earth solids.

Technology is described for construction of wells capable of providing representative, uncontaminated samples of ground water in compact alluvial formations at relatively shallow depths and for obtaining cores of subsurface earth solids suitable for organic and microbial analyses in similar circumstances. Methods for acquisition of grab samples of ground water suitable for total organic and microbial analyses and for analyses of volatile organics are presented. Continuous sampling of organics in ground waters lying within approximately 7.5 m (25 ft) of the surface by sampling units utilizing selected absorbents is described, including details of absorbent columns, configuration of and housings for sampling systems, and sample handling. Procedures for handling and processing of core materials to produce samples amenable to analytical methods for organics and microorganisms are also presented.

The procedures described provide a basic capability for sampling for organic pollutants and microorganisms in relatively shallow subsurface environments, and have potential application in many investigations pertaining to groundwater pollution. Additional research is needed, however, to further evaluate, improve, and extend their capabilities.

This report covers a period from July 1975 to January 1977, and work was completed as of May 1977.

Everitt, B. L., and B. N. Kaliser, 1980, Geology for assessment of seismic risk in the Tooele and Rush Valleys, Tooele County, Utah: State of Utah Department of Natural Resources, Special Studies No. 51, 33 pp.

Tooele Valley, to the north, and Rush Valley, to the south, are the topographic expression of a northward plunging structural basin. Both valleys are relatively flat, floored with Lake Bonneville sediments, and ringed with coalescing alluvial fans.

The region is characterized by fault-block mountain ranges and intervening sedimentary basins. Basin and range normal faulting may have begun in the Stansbury Mountains in the Paleocene. Data indicates continued uplift of mountain blocks and subsidence of the basins during the Quaternary epoch, with a possible regional northward tilting.

The two basins are partly filled with moderately consolidated to unconsolidated layers of sand, gravel, silt and clay of Neogene Age, derived from the adjacent mountains. These were deposited by a combination of alluvial and lacustrine processes. The basin fill is separated into the Salt Lake Group, an upper Tertiary sequence which is characterized by considerable deformation and an abundance of volcanic ash, and a Quaternary sequence of relatively undeformed deposits which unconformably overlies the Salt Lake Group. The basin fill in Rush Valley is mostly of Tertiary age. Driller's logs indicate that the Salt Lake Group sediments are close to the surface which supports the suggestion that Rush Valley drained northward into Tooele Valley during a substantial part of the Quaternary, carrying most finer-grained Quaternary sediment out of the basin.

Gravity anomalies in Tooele Valley indicate that the basin is probably not a single down-faulted graben, but is probably a complex collection of troughs and ridges. Rush Valley is similar to Tooele Valley in being composed of a number of smaller horsts and grabens. Potentially active faults are found throughout the basin.

Ten fault zones identified within the study area show evidence of Quaternary surface faulting. Evidence of post Lake Bonneville displacement was confirmed for the OBT fault zones, the Oquirrh marginal fault,and the Sixmile Creek Fault.

The entire area may be considered seismically active, with no part of the valleys more than 10 miles from a potentially active fault. However, the different fault zones are not all of the same age and do not express the same degree of activity. It is assumed that the actual density of Quaternary faults is as great or greater in Tooele Valley as it is in Rush Valley, and that there is a large number of undetected potentially active faults in Tooele Valley.

Federal Register, December 3, 1979, Part III - Environmental Protection Agency - Guidelines Establishing Test Procedures for the Analysis of Pollutants; Proposed Regulations.

The EPA proposes to amend its list of approved analytical techniques by adding test procedures for 113 organic toxic pollutants, an additional test procedure for inorganic toxic pollutants, a procedure for carbonaceous BOD5, and requirements for sample preservation and holding times. The use of these procedures would be required for filing applications for National Pollutant Discharge Elimination System (NPDES) permits, for State certifications, and for compliance monitoring under the Clean Water Act. After considering comments received in respose to this proposal, EPA will promulgate a final rule.

Garvis, D. G., and D. H. Stuermer, 1980, A well-head instrument package for multi-parameter measurements during water well sampling, Lawrence Livermore Laboratory, University of California, Livermore, California.

A portable well-head instrument package was designed to provide more reliable measurements of pH and redox potential (Eh) and to continuously monitor these parameters along with conductivity and temperature to insure proper well water sampling in the field. The probes are housed within a block that attaches directly to the well-head and allows measurement of all parameters before cooling or atmospheric exposure occurs. The values of the parameters are continuously displayed on four digital displays and water sampling is begun after they stabilize.

Gates, Joseph S., 1965, Reevaluation of the ground-water resources of Tooele Valley, Utah: Utah State Engineer Technical Publication No. 12, 68 pp.

Tooele Valley is a structural depression bordered by uplifted mountain ranges which are largely composed of marine deposits of Paleozoic age. The valley is filled with alluvial, colluvial, lacustrine, and possibly volcanic deposits of Tertiary and Quaternary age, which at one place are probably as thick as 7,100 feet. Five faults in the valley were redefined or defined during this investigation - the Mill Pond, Occidental(?), Fishing Creek, Warm Springs, and Sixmile Creek faults.

Ground water occurs under both water-table and artesian conditions, but almost all of the 1,300 wells in the valley tap artesian aquifers. The principal artesian aquifer in the northern part of the valley is from 80 to 130 feet thick, and the depth to the top of this aquifer ranges from 50 to 300 feet.

Recharge to the artesian aquifer system is from precipitation, seepage from streams, seepage from irrigated land, underflow from the canyons in the mountains, and seepage from the bedrock of the mountains. Recharge to the artesian aquifers is about 100,000 acre-feet per year.

Ground water in the valley moves northward toward Greak Salt Lake, generally parallel to the slope of the land surface. Discharge from the artesian aquifer system in 1962 included 21,000 acre-feet from wells, most of the 15,000 acre-feet discharged from springs, most of the 40,000 acre-feet discharged by evapotranspiration from an area of phreatophytes in the northern part of the valley, and most of the ground water discharged by subsurface flow to Great Salt Lake. Between 1938-40 and 1962, discharge from wells has more than tripled, whereas discharge from springs decreased by about one-fourth.

Coefficients of transmissibility obtained from aquifer tests in the valley range from 120,000 to 1,300,000 gallons per day per foot, and storage coefficients range from 0.0002 to 0.0042.

Water levels in the valley declined between 1950-52 and 1963. Water levels declined from 5 to 11 feet from 1958 to 1963 in the Erda and Grantsville districts, whereas water levels in other parts of the valley declined lesser amounts. Below-normal precipitation since 1950-52 has caused part of the decline and led to an increase in pumping which actually caused most of the decline.

Most of the ground water in the valley contains less than 1,000 parts per million of dissolved solids and can be used for most purposes, although it commonly is hard. Ground-water development has not caused any major changes in water quality, but some poor-quality water may be moving into areas of better-quality water in the Mill Pond and Marshall districts.

Normal ground-water temperatures range from 53°F at a depth of 50 feet to about 63° at a depth of 640 feet. Above-normal temperatures near Mill Pond and Dunne's Pond Springs, Fishing and Sixmile Creeks, and Warm Springs indicate that saline water rises along faults in these three areas.

Future development of ground water in Tooele Valley will reduce losses by evapotranspiration and subsurface flow to Great Salt Lake. Concurrent with these benefits, however, water levels will decline, many wells will stop flowing, the discharge of some springs may decrease, and water of poor quality may migrate into areas of water of good quality. Careful planning and management of ground-water development would minimize these harmful effects.

Hood, J. W., D. Price, and K. M. Waddell, 1969, Hydrologic reconnaissance of Rush Valley, Tooele County, Utah: State of Utah Department of Natural Resources, Technical Publication No. 23, 63 pp.

Rush Valley is an elongated depression that covers about 250,000 acres and is part of a drainage basin that covers about 470,000 acres. The valley extends about 30 miles from Stockton in T. 4S., R. 5W., southward to the Sheeprock Mountains. The main ground-water reservoir is in unconsolidated rocks of late Tertiary(?) and Quaternary age.

The source of all water in Rush Valley is the 550,000 acre-feet of precipitation that falls mainly on the Oquirrh, Stansbury, Onaqui, and Sheeprock Mountains. The estimated maximum potential long-term average annual runoff from the uplands is 70,000 acre-feet of water. No surface water leaves the topographically closed valley.

The estimated average annual ground-water recharge to and discharge from Rush Valley is in the range of 34,000-37,000 acre-feet. Ground water is discharged from the valley by wells, by evapotranspiration (including spring flow), and by subsurface outflow through the east edge of the valley. In 1966, wells discharged about 4,800 acre-feet of water. Evapotranspiration accounts for about 70 percent of the total ground-water discharge, and subsurface outflow accounts for about 14 percent. The estimated perennial yield of ground water in Rush Valley is about 15,000 acre-feet (including current pumpage) if well spacing is carefully planned. Water in excess of this amount would have to be drawn from storage with resulting water-level declines. If water levels were lowered 100 feet, the estimated amount of recoverable water would be 1.6 million acre-feet.

The chemical quality of water in Rush Valley is generally good for irrigation and domestic purposes. The range of concentrations of dissolved solids in water in the drainage basin is 200-2,180 ppm (parts per million). Water from only three sources contained concentrations of dissolved solids in excess of 1,000 ppm.

Development of water in Rush Valley has been largely on the northern and western sides of the valley and at the Deseret Chemical Corps Depot. The main use of the water has been for irrigation. In 1966, an estimated 5,800 acres were irrigated partly with surface water and supplemental ground water and partly with ground water alone. Ground water is the main source of water for future development in the valley. Because Rush Valley is among the more densely populated of the desert basins in western Utah and because of increasing interest in the valley, a detailed water-resources study of Rush Valley is needed immediately.

Lappala, E. G., 1978, Quantitative hydrogeology of the Upper Republican Natural Resources District, Southwest Nebraska: U.S. Geological Survey, Water Resources Investigation 78-38, 200 pp.

Ground-water use has increased rapidly in the Upper Republican Natural Resources District in southwest Nebraska with recent irrigation development. The principal aquifer being developed comprises saturated sand and gravel of the Ogallala Formation of Tertiary age. Water levels in this aquifer have declined as much as 16 feet between 1952 and 1975. Natural discharge of the aquifer to perennial streams has been reduced by as much as 19 percent between 1967 and 1975.

Good management of the water resources of the District requires quantitative knowledge of the operation of the hydrogeologic system. Quantification was provided through the development and use of simulation models describing the operation of the land surface-plant-soil and ground-water phases of the hydrologic cycle. An integrated approach to simulation was used wherein models of the soil and saturated zones were linked through source-sink terms.

Both models were tested against documented hydrologic conditions, and sensitivity analyses were utilized extensively in the testing process. After the models were considered sufficiently representative of the operation of the actual hydrogeologic system, they were used to predict future rates of water-level changes and streamflow depletions caused by two possible futures. One was continued unrestricted private irrigation-well development, and the other allowed no additional development after 1975.

These analyses indicate water-level declines of as much as 140 feet in the Grant and Lamar areas by 2000 under unrestricted ground-water development for irrigation. Water-level declines over most of the remainder of the study area would be less than 60 feet under continued development and less than 40 feet under no additional development from 1975 to 2000. Ground water in storage would be reduced by about 3.7 percent by 2000 under continued development and by about 2.8 percent by 2000 under no further development. The analyses also show that the base flow of Frenchman, Stinking Water, and Spring Creeks would be reduced to less than 10 percent of the 1975 values under no further development and eliminated by about 1992 under continued development.

Pettijohn, W. A., W. J. Dunlap, R. Cosby, J. W. Keeley, 1981, Sampling ground water for organic contaminants: Ground Water, Vol. 19, No. 2, pp. 180-189.

The proper collection of ground-water samples for analysis of organic compounds differs substantially from routine inorganic constituents because the former are easily contaminated and generally appear in the parts per billion range.

Much of the sampling equipment that has been developed at the Robert S. Kerr Environmental Research Laboratory during the past few years is constructed from Teflon or glass. While the former is expensive and the latter is fragile, neither contaminate or modify a water sample as does rubber, metal and most plastics.

Designs are provided for a grab sampler, a continuous sampler consisting of adsorbent columns, a protective housing for a sampling system, a continuous discharge/high lift glass pump, and a system for obtaining highly volatile organic compounds from the unsaturated zone.

Razem, A. C., and J. I. Steiger, 1981, Ground-water conditions in Tooele Valley, Utah: Utah State Engineer, Technical Publication No. 69, 95 pp.

Ground-water conditionsin Tooele Valley, Utah, did not change significantly between 1963 and 1978. Water levels in the artesian aquifers declined 2-4 feet in the Grantsville area, rose 4-12 feet in the Erda area, and remained relatively stable in the north part of the valley.

Tooele Valley is underlain by a thick sequence of unconsolidated sediments of Tertiary to Quaternary age. A change in lithology at a depth between 800 and 900 feet (244 and 274 m) may mark the top of sediments of Tertiary age.

Ground-water occurs in the bedrock and recharges the valley-fill aquifer at the mountain-valley contact or by upward leakage in the valley. Ground water occurs under water-table conditions in the valley fill near the mountains at a depth of several hundred feet and in the northern part of Tooele Valley from depths of about 50 feet to land surface. The artesian aquifers are considered a single hydrologic unit, although they are divided into 5 districts.

The southeastern and southwestern parts of the valley are the areas of greatest recharge, with the Stansbury Mountains contributing 19,200 acre-feet, the Oquirrh Mountains contributing 31,500 acre-feet, and South Mountain with 150 acre-feet. Subsurface inflow from Rush Valley is estimated to be 5000 acre-feet.

The general direction of ground-water movement is from the east, south, and west northward toward Great Salt Lake. Ground water discharge in 1977 was about 17,000 acre-feet from springs, 23,000 acre-feet by evapotranspiration, and about 3,000 acre-feet to Great Salt Lake.

The transmissivity of the artesian aquifer ranges from 250 $ft^2/d$ in the north to about 60,000 $ft^2/d$ in the south. The estimated average value of the storage coefficient of the valley fill is 0.002. The total amount of ground water in storage in the upper 1,000 ft of saturated valley fill is estimated to be about 13 million acre-feet.

Ground-water quality did not change significantly between 1963 and 1978. However, wells drilled in the south-central and southeast parts of the valley have encountered water of poor quality, with relatively high concentrations of sulfate and chloride.

A digital-computer model was used to predict water-level changes for the period of 1978 to 2008. The model indicates that water levels would decline less than 5 feet in most of the valley if well discharge is equal to the average discharge of 1973-77, and water levels will decline less than 15 feet in most of the valley, if well discharge is 1.5 times the 1973-77 average discharge.

Scalf, M. R., J. F. McNabb, W. J. Dunlap, R. L. Cosby, and J. Fryberger, 1981, Manual of Ground-Water Sampling Procedures: National Water Well Association, Worthington, Ohio, 93 pp.

Recent environmental legislation has recognized the importance of ground water quality protection and the stresses that man's activities, especially waste disposal, place on this vital national resource. To provide a realistic assessment of current and potential pollution problems and a rational basis for ground water quality protection, it is necessary to collect representative samples from this remote and relatively inaccessible environment. This report presents some procedures currently utilized to sample ground water and subsurface earth materials for microbial and inorganic and organic chemical parameters.

In selecting a sampling procedure, a number of considerations are described based on the objectives of the sampling program, characteristics of pollutants, nature of pollution source and hydrogeology of the area. Various techniques for constructing sampling wells and for withdrawing samples are described with advantages and disadvantages of each method listed. For situations where samples of subsurface earth materials are required to adequately assess ground water quality threats, procedures are described for collecting, handling, and processing core samples. Finally sample preservation, sample records, and chain of custody procedures are discussed.

The procedures described provide a basic capability for sampling subsurface environments. Additional research is needed, however, to further evaluate, improve and extend these capabilities, especially in sampling related to organic chemical parameters.

Schuller, R. M., J. P. Gibb, and R. A. Griffin, 1981, Recommended sampling procedures for monitoring wells: Ground Water Monitoring Review, Vol. 1, No. 1, pp. 42-46.

Monitoring wells are the principal source of data for evaluating the effects of waste disposal sites on ground water. For these evaluations to be meaningful, the water samples collected from the monitoring wells must be representative of the water in the aquifers or water-bearing strata being studied. Although several laboratories and agencies have proposed procedures for sampling water from monitoring wells, there exists little supportive data to indicate that these procedures produce "representative" water samples.

The objective of this study was to develop a sampling protocol for monitoring wells. Included in this protocol are:

1. criteria for selection of an appropriate pumping mechanism;

2. procedures for determining the necessary extent of well flushing before a sample should be collected;

3. procedures for sample preparation, preservation and storage.

On the basis of the results of this study, collecting "representative" water samples from monitoring wells is not a straightforward or easily accomplished task. Each monitoring well has its own individual hydrologic and chemical character that must be considered when planning a sampling protocol. The selection of the type of sampling device, the sample preparation, preservation, storage and the sampling procedures must all be tailored to the size and accessibility of the individual well, its hydrological and chemical character, the chemical constituents of interest, the time of year and the purpose for monitoring.

General recommendations for sampling procedures that will allow for the collection of representative water samples include: 1) a brief, 2 or 3 hour pumping test to determine the frequency at which samples will be collected; 2) samples should be collected in the minimum time required to produce "representative" aquifer water; 3) peristaltic or submersible diaphragm pumps are recommended for most applications; and 4) measurement of pH, Eh and specific conductance should be made at the time of sample collection, and then the samples should be promptly filtered and preserved.

Taras, J. J., A. E. Greenberg, R. D. Hoak, and M. C. Rand (editors), 1981, Standard Methods for the Examination of Water and Waste Water, 15th ed.: American Public Health Association, N.Y.

The procedures described in these standards are intended for the examination of waters within a wide range of quality. These waters include water suitable for domestic or industrial supplies, surface waters, groundwaters, cooling or circulating water, boiler water, boiler feed water, wastewater effluents after varying degrees of treatment, and untreated municipal or industrial wastewaters. With higher standards of effluent quality and the increasing use of natural waters for receiving treated effluents, the distinction between polluted and unpolluted waters has been abandoned in favor of a unified treatment that reflects growing realization of the unity of the fields of water supply, receiving water quality, and wastewater treatment and disposal.

An effort has been made to present methods that apply as generally as possible, and where alternative methods are necessary for samples of different composition, to present as clearly as possible the basis for selecting the most appropriate method. However, samples with extreme concentrations or otherwise unusual compositions may present difficulties that preclude the direct use of these methods. Hence, some modification of a procedure may be necessary in specific instances. Whenever a procedure is modified, the nature of modification must be stated plainly in the report of results.

Certain parts of these standards present procedures that are intended for use with sludges and sediments. Here again, the effort has been to present methods of the widest possible application, but when chemical sludges or slurries, or other samples of highly unusual composition are encountered, the methods of this manual may require modification, or may be wholly inappropriate.

Many water plant laboratories perform analyses on bulk chemicals received for the treatment of water. These standards are not intended to cover such analyses. A committee of the American Water Works Association prepares and issues standards for water treatment chemicals. Each separate standard describes the acceptable physical and chemical characteristics of the material and presents methods for collecting the sample and determining the major components in order to ascertain compliance with the specifications.

Thomas, H. E., 1946, Ground-Water in Tooele Valley, Utah: Utah State Engineer, Technical Publication No. 4, 237 pp.

Tooele Valey is roughly 15 miles long and 10 miles wide. Bordered on the west by the Stansbury Range, on the east by the Oquirrh Range, and on the south by South Mountain, it opens northward to Great Salt Lake. The bordering mountain ranges are formed by Paleozoic rocks ranging in age from Lower Cambrian to Pennsylvanian but with the Ordovician and Silurian periods unrepresented. There is no sedimentary record of the interval between Pennsylvanian and Tertiary times, and the Tertiary, Quaternary, and Recent sediments are of continental origin. Pleistocene sediments are of major importance because they form the surface rock over most of the area, and give rise to conditions which yield water by artesian flow in the lower part of the valley.

The development of the present land forms in this area began with the folding of Paleozoic and probably Mesozoic sediments during the Laramide revolution. The principal physiographic subdivisions of the valley were developed as a result of the Basin-Range faulting, which began early in the Tertiary and has continued to Recent times.

There are about 1,100 wells in Tooele Valley, about 90 percent of which yield or have yielded water by artesian flow. These wells and many of the springs derive their water from the unconsolidated Quaternary sediments, which include discontinuous, lenticular and commonly elongated bodies of sand, clay, gravel, and boulders of alluvial origin alternating and inter-fingered with lacustrine beds of the same materials which are more regularly stratified and better assorted. The well assorted sands and gravels deposited along the shore lines of Lake Bonneville are important as recharge areas for the artesian reservoir.

A zone of coarse sediments 60 to 125 feet thick, constitutes the principal aquifer in the valley. Several flowing wells yield water from strata above this principal aquifer and some wells reach deeper aquifers. In all cases the deeper wells have a greater head than the shallow wells and some differential head has been observed in wells reaching different parts of the principal aquifer. The several aquifers are not mutually independent and the intervening strata are not truly impervious. Thus the ground water in the valley is considered to occur in a common reservoir in which the strata that separate the aquifers are not continuous enough or impervious enough to form major separations although they undoubtedly have a pronounced local effect on the movement of the water.

In its broad general aspects the form of the piezometric surface of the principal aquifer is similar to that of the land surface but in detail it is notably different. These differences are due to variations in the permeability of the aquifer, discharge from wells, and ground-water dams produced by faultng.

Additions to the ground-water body are received by seepage from streams and underflow in canyons that drain the mountains bordering the valley, direct penetration of rain and melted snow within the valley, and penetration of excess water applied for irrigation. Water rises along faults to form the largest springs in the valley. These faults generally act as conduits for

water already in the ground-water basin rather than as sources of additional water. The movement of ground water in Tooele Valley follows more or less the pattern of the surface drainage down the alluvial slopes toward the central and lowest part of the valley and thence northward toward Great Salt Lake. The natural disposal of this water is by springs and by evapo-transpiration especially in the northern part of the valley. The present discharge of springs is nearly 20,000 acre-feet annually, and evapo-transpiration losses may be considerably greater than this amount. In addition to the natural losses, some 6,000 to 7,000 acre-feet are withdrawn each year from wells. Of the total discharge about 10,000 acre-feet from springs and about 5,000 acre-feet from wells is put to beneficial use.

Chemically the well and spring waters fall into three classes: calcium-bicarbonate waters of low concentration, sodium-chloride waters of high concentration, and waters of intermediate concentration containing considerable amounts of both of the constituents dominant in the other two types. The areas where there is considerable draft for irrigation, particularly the Erda and Grantsville districts, commonly yield water of better quality than the areas of lesser ground-water development.

Tooele Army Depot, 1975, Land Management Plan for Tooele Army Depot and south area activity: Staff Report, Tooele, Utah.

The land management plan provides information on storm drainage, leased land, and the name, location, and description of principal soil types and natural vegetation. It also provides information on the climate, including precipitation and temperature data.

U.S. AEHA, 1972, Air Pollution Engineering General Survey No. 21-001-73, Toole Army Depot, Tooele, Utah, 11-13 Sept., 1972: Edgewood Arsenal, MD, 8 pp.

An air pollution engineering general survey was conducted at Tooele Army Depot, Tooele, Utah, on 11-13 September 1972. It was recommended that the three coal-fired boiler units in Building 124 of the South Area and six remaining small coal-fired space heaters at the North Area, which are located in buildings that are in standby status, be converted to fuel oil prior to reactivation of the facilities. The deactivating furnace which is used to destroy a variety of small arms ammunition should be further evaluated by Tooele Army Depot for particulate emissions and by this Agency for plume opacity.

Tooele Army Depot's comprehensive air pollution program has significantly reduced the quantity of pollutants introduced into the atmosphere. The major accomplishments of the abatement program are the conversion of four large coal-fired boiler plants to fuel oil and the elimination of open burning at two locations.

U.S. AEHA, 1976, Air Pollution Engineering General Survey No. 66-107-76, Tooele Army Depot, Tooele, Utah, 26-27 Jan. 1976: Edgewood Arsenal, MD.

An air pollution engineering general survey was conducted at Tooele Army Depot to evaluate sources of air pollutant emission, review the installation's air pollution abatement plan, and evaluate compliance with Federal, State, and local regulations on air pollution. Sources investigated were stationary fuel combustion, solid waste disposal, volatile fuel storage, and industrial operations. All active sources are in compliance with applicable regulations. Liaison should be established with U.S. Environmental Protection Agency, Region VIII, and Utah air pollution control authorities to insure that the open burning of explosives and explosive-contaminated wastes is conducted under conditions acceptable to the U.S. Environmental Protection Agency and the State of Utah. Measures should be taken to evaluate the increased use of the APE-1236 deactivation furnace and the open pit air curtain to reduce the quantity of explosives and explosive-contaminated wastes open burned on the installation. In addition, if any of the coal-fired boilers are activated, their plumes should be evaluated by qualified smoke readers to insure compliance with the Utah air conservation regulations. Presently, stockpiled coal has a sulfur content slightly higher than allowed by Utah law. Its future use should be coordinated with State authorities and future coal procured should contain less than 1.0 percent sulfur.

U.S. AEHA, 1980, Army Pollution Abatement Program Study No. D-1624-S, Phase 1, Hazardous Waste Special Study, Tooele Army Depot, Tooele, Utah, 7-17 July 1980: Aberdeen Proving Ground, MD.

This study was performed to review operations dealing with the storage, treatment, disposal, and recovery of hazardous wastes; to assist the installation with the management of hazardous wastes relative to Public Law 94-4580 and State and military regulations; and to write protocols for studies or projects to determine whether facilities need to be upgraded to conform with applicable regulations.

Phase 1, this report, delineates remedial actions to be taken by the installation. Major recommendations for Phase 1 include the following:

1. Develop a coordinated hazardous waste management plan for identification, recordkeeping, reporting, recovery, storage, and disposal preparation of unwanted hazardous materials. This plan should include facilities for those operations.

2. Continue close liaison with the State of Utah Department of Health concerning the hazardous waste management requirements, especially with regard to future regulations on materials destined for recycle or recovery and on infectious wastes.

3. Test industrial wastes for characteristics of hazardous wastes under RCRA.

4. Prohibit comingling of chlorinated and other hazardous solvents with the used oils.

USATHAMA, 1979, Installation Assessment of Tooele Army Depot, Report No. 141, December 1979: Aberdeen Proving Ground, MD.

A records search was conducted to assess the environmental quality of Tooele Army Depot (TEAD) with regard to the use, storage, treatment, and disposal of toxic and hazardous materials and to define any condition which may adversely affect health and welfare or result in environmental degradation.

The review of records identified the major areas of potential contamination as burial sites, testing areas, explosives washout areas, industrial areas, and burning and demolition areas. The major contaminants suspected include chemical agents, plating rinse waters, and residue from explosives washout operations.

The potential for contaminant migration exists on both the North and South areas of TEAD. In the North Area, the site of primary concern is the southwest corner (demolition grounds and 'Chemical Range') which is located in the groundwater recharge zone. In the South area, the major areas of contamination are the mustard storage areas, burial areas, and demolition grounds.

U.S. Army Depot Systems Command, 1976, Environmental Impact Assessment of Tooele Army Depot: Tooele Army Depot, Tooele, Utah.

The Tooele Army Depot (TEAD) has a fourfold principle mission which includes the storage of ammunition, rebuilding military equipment, storage of military equipment, and demilitarization of ammunition.

The impact assessment provides information on the natural vegetation, precipitation data and air pollutant emissions reports.

U.S. Department of Interior, 1977, National Handbook of Recommended Methods for Water-Data Acquisition, Office of Water Supply Coordination, Geological Survey, Reston, VA.

The increased demand for water and the concern for the quality of the water resources of the United States has logically led to an increased demand for water-resources data. The purpose of the National Handbook of Recommended Methods for Water Data Acquisition is to document the methodologies that the collectors and users of the hydrologic data believe to be most suitable and, thereby, provide a coordination mechanism for data acquisition to assure greater comparability, compatibility, and usability of water data.

The National Handbook presents the water-data acquisition methods recommended by a large sector of the major U.S. water-data collectors and users. The handbook includes field, laboratory, and office methods for acquiring data related to the quantity and quality of water in streams, lakes, reservoirs, estuaries, underground, and in the atmosphere, and to fluvial sediment, soil water, and drainage-basin characteristics. Detailed methods descriptions are given only where references, manuals, orstandards of acceptable quality are not available. However, sufficient information is provided in each chapter for the user to evaluate and select the best method for obtaining desired data. Nomenclature and definitions, units of measurement, discussion of necessary equipment, precision and accuracy evaluations, and recommended quality-control procedures are also included in some of the chapters. References are given in each chapter to help locate more detailed information.

U.S. EPA, 1980, Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilities, EPA/SW-611, 269 pp.

This manual should serve as a useful tool as State solid waste agencies proceed to strengthen their land protection programs. The manual is primarily addressed to the supervisory personnel of solid waste regulatory agencies, although its contents can be readily used by engineers in the field. It is offered as a guide to be used and tailored by the supervisory personnel at their discretion and guidance to persons without prior training or experience. It should prove helpful to the operators and managers of solid waste disposal facilities who find a need for a familiarity with and understanding of the fundamental principles involved in ground water pollution and monitoring.

Generally, the manual includes fundamentals and provides guidance to assist the user in:

- o establishing the need for monitoring;
- o assigning priorities for facilities to be monitored;
- o implementing and directing cost-effective, on-going monitoring program responsible to the purposes and data needs established.

The information, as presented, is offered as guidance and suggested methods only. Site specificity is recognized throughout the manual.

U.S. EPA, March 1979, Methods for Chemical Analysis of Water and Wastes, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio; EPA-600/4-79-030.

The manual provides test procedures approved for the monitoring of water supplies, waste discharges, and ambient waters, under the Safe Drinking Water Act, the National Pollutant Discharge Elimination System, and Ambient Monitoring Requirements of Section 106 and 208 of Public Law 92-500. The test methods have been selected to meet the needs of federal legislation and to provide guidance to laboratories engaged in the protection of human health and the aquatic environment.

The manual provides test procedures for the measurement of physical, inorganic, and selected organic constituents and parameters. The methods were chosen through the combined efforts of the EPA Regional Quality Assurance Coordinators, the staff of the Physical and Chemical Methods Branch, Environmental Monitoring and Support Laboratory, and other senior chemists in both federal and state laboratories. Method selection was based on the following criteria:

1. The method should measure the desired property or constituent with precision, accuracy, and specificity sufficient to meet the data needs of EPA, in the presence of the interfering materials encountered in water and waste samples.

2. The procedure should utilize the equipment and skills available in modern water pollution control laboratories.

3. The selected method is in use in many laboratories or has been sufficiently tested to establish its validity.

4. The method should be rapid enough to permit routine use for the examination of a large number of samples.